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I

EDUCATIONAL VALUES[1]

We estimate a man's worth by his intellectual grasp, his æsthetic and ethical insight, and his power for action toward right and useful ends. If these characteristics make the ideal man, they should be the ideal aim of education, and a study is to be valued as it best contributes toward developing them. The same test of efficiency is to be applied to the whole curriculum of a school period.

There is a correlation between the field of knowledge and the knowing being. The objective world, with its varied content, answers to the mind with its varied powers. It is through the objective world of nature and of man that the subject comes to a consciousness of himself. Each important phase of the objective world makes a distinct contribution in extent or kind of knowledge to that consciousness. We do not live in a world where cucumbers grow on trees, or where human beings fail in their ever-recurring characteristics; and I believe it possible to discover the kind of value which each source of knowledge may furnish toward the education of the child, with the expectation that we shall not find the choice of studies to be a matter of indifference.

Without laying claim to a best analysis I may use a customary division of the field of knowledge; (1) mathematical relations; (2) natural phenomena; (3) human action;

[1] An Address delivered before the National Educational Association at Denver, Colo., July 12, 1895.

(4) human thought; (5) æsthetic and ethical qualities. The studies corresponding are (1) mathematics; (2) natural science; (3) history; (4) language and literature; (5) art and ethics. Mathematics treats of quantitative knowledge, furnishes a peculiar intellectual training, and makes possible all commerce, all great structures, and the higher developments of physical science. Natural science acquaints us with the field of physical phenomena and of plant and animal life, is the best training in induction, and is largely the basis of our material civilization. History reveals the individual and our present civilization, is the light of all human action, is a source of ethical training, and has high practical value for the problems of government and society. Literature reveals the ideal thoughts and the speculations of men, gives æsthetic and ethical culture, and in a practical way applies poetry to life. Art and ethics deal with distinct types of knowledge, cultivate the higher emotional powers and, like ideal literature, set up standards of perfection in execution and in conduct of life.

The world in which we live is the world we are to know in order to adapt ourselves to it in thought, the world we are to know in order to gain power to work therein with success, the world we are to know as representing the thought of the Creator and the correlated nature of man, the world we are to know to gain the soul's highest realization—and for these ends, to know in its various phases. Each department of study makes its own peculiar contributions to knowledge, each has its peculiar fitness for developing some given power of the mind, each makes its own contribution in preparing the individual for the practical world. In three distinct ways does each subject have a peculiar value—for knowledge, for power, for practical life.

While a classification of studies without cross-divisions is impossible, we may say that the first four groups give us the power of knowledge for action; the fifth the feeling for perfection of action and for rightness of action—and these in their exercise and their tendency create the right kind of power in action.

Can the exact absolute and relative value of each line of study be determined? No, but we may make approximate estimates through philosophical study of the relation of the mind to the world, through the history of education and the experience of practical teachers. Every position is tentative and subject to constant readjustment, with a closer approach to truth. A reinvestigation of many problems through careful observation of children will doubtless make an important contribution to knowledge of values, if the experiments are conducted with a wisdom that takes them out of the realm of fads, and if the Platos of the world are not given a seat too far back. Important as this kind of investigation is, extreme advocates may undervalue the store of educational philosophy that has become common property. From Cain and Abel down, the child has always been the observed of all observers; the adult man recognizes the nature of the child in his own nature, and has recollections of many of his first conscious experiences. From the time of the early philosophers, the data have been sufficient to discover universal truths. Child-study serves, not so much to establish principles, as to bring the teacher's mind in close sympathy with the life of the child, in order to observe carefully facts for the application of principles.

In an ideal course of general training, can there be, in any exact meaning, an equivalence of studies? As well ask whether one sense can do the work of another in revealing the world to the mind. To be sure, the fundamental conceptions of the material world can be obtained through the sense of touch alone; but we also attach importance to the revelations of sight and hearing, and these revelations have a different quality. He who lacks these other senses is defective in sources of soul-development. So he who neglects important fields of knowledge lacks something that is peculiar to them. Each study helps every other, and before special training begins each is to be used up to the time when the student becomes conscious of its meaning. By contact with nature and society, the child, before the school period, gets an all-

around education. He distinguishes numerically, observes natural phenomena, notes the deeds of his fellows, gains the thoughts of others, and begins to perceive the qualities of beauty and right. The kindergarten promotes all lines of growth; the primary school continues them. Shall the secondary school be open to broad election? At a time when some educators of strong influence are proclaiming the formal theory of education, that power without reference to content is the aim of study, and some universities encourage a wide choice of equivalents in preparation for admission, and the homes yield to the solicitation of pupils to omit difficult subjects, it is important to answer the question in the light of the previous analysis. And I say No, for the simple reason that not until the secondary period can the meaning of the various departments of knowledge be brought within the conscious understanding; not until then are the various powers developed to a considerable degree of conscious strength; not until then has the natural bent of the student been fairly tested. In this period one would hardly advocate the exclusive study, for instance, of history to the entire neglect of mathematics and physics; nor would he advocate the choice of mathematics to the entire neglect of history and literature.

The question of college electives is to an extent an open one. But it is clear that when general education ends special education should begin, and that indiscriminate choice of studies without purpose is no substitute, either for a fixed curriculum or for group-election in a special line. I believe most fully in the freedom of modern university education, but not in its license. Its freedom gives the opportunity to choose special and fitting lines of work for a definite purpose; its license leads to evasion and dilettanteism. We hear of a senior who took for his electives Spanish, French, and lectures in music and art, not because they were strong courses in the line of his tastes and tendencies but because they were the lines of least resistance. There appears to be a reactionary tendency toward a more careful guarding of college electives, together with a shortening of the college course, in order that

genuine university work may begin sooner. If this tendency prevails it will become possible to build all professional and other university courses upon a substantial foundation, and we shall no longer behold the disgraceful spectacle of law and medical students entering for a degree upon the basis of a grammar-school preparation.

The opportunity to specialize, which is the real value of college election, is necessary even for general education. To know all subjects one must know one subject. The deepening of one kind of knowledge deepens all knowledge. The strengthening of power in one direction strengthens the whole man. And education is not complete until one is fairly master of some one subject, which he may employ for enjoyment, for instruction, and for use in the world of practical activity. Here we reach the ultimate consideration, on the intellectual side, in estimating educational values.

"But," says someone, "my conservative, not to say old-fashioned friend, do you not know—etc.?" Yes, I know that we have before us new problems or a reconsideration of old problems, and I hope I am with the vanguard. I believe the trend of educational thought is right, however we may for a time deviate in curious paths. I know that mental capacity, health, time, money, home obligations, proposed occupation and even deviation from the normal type are all to be considered in planning the education of a pupil. But the deviations from ideal courses and standards should be made with ideals in view, a different proposition from denying the existence or possibility of ideals. Yes, I know that the mind is a unit-being and a self-activity, that it develops as a whole, that there are no entities called faculties. But suppose the various psychical activities had never been classified, as they now are, in accordance with the facts of consciousness, the usage of language and literature, and the convenience of psychology, what a herald of fresh progress would he be who would first present mental science in clear groupings. We may call the world one, but it has many phases; the mind is one, but it has many phases; these are more or less correlated, and our

theory of educational values stands. Yes, I know that interest is the *sine qua non* of success in education, and nothing is more beneficent than the emphasis given this fact to-day. I also know that pleasure is not the only, not even the most valuable interest; and that the disagreeable character of a study is not always a criterion for its rejection. The pleasure theory will hardly overcome the importance of a symmetrical education.

In regard to some things, however, some of us must be permitted to move slowly. We must use the principle of apperception and interpret the new in the light of that which has for a long time been familiar; attach it to the apperception-mass; we must be indulged in our right to use the culture-epoch theory and advance by degrees from the barbaric stage to that of deeper insight; we must concentrate (concenter) with established doctrines, other doctrines that present large claims, and learn their correlations and co-ordinations.

A new object or idea must be related to and explained by the knowledge already in mind; it must be so placed and known, or it is not an idea for us. If apperception means the act of explaining a new idea by the whole conscious content of the child's mind, then it is the recognized process of all mental growth. In a given study topics must be arranged in logical order, facts must be so organized as to constitute a consistent whole, important relations with other studies must be noted, and one subject must be made to help another as opportunity arises. If correlation means to unite and make clear parts of subjects by discovery of valuable mutual relations, then it is a vital principle of all good teaching. Studies, while preserving their integrity, must be adjusted to each other in time and sequence, so that a harmonious result may be produced. If co-ordination means the harmonious adjustment of the independent functions of departments of study, I own the triteness of the truth.

If the theory of culture-epochs finds a parallel in order of development between race and individual, and throws light upon the selection of material for each stage of the child's growth, then let the theory be used for all it is worth. Its

place, however, will be a subordinate one. Here are the world and the present civilization by means of which the child is to be educated, to which he is to be adjusted. Select subjects with reference to nature as known by modern science, with reference to modern civilization and the hereditary accumulation of power in the child to acquire modern conceptions.

If concentration means subordinating all other subjects of learning to a primary subject, as history or literature, which is to be used as a center throughout the elementary period, I refuse to give it a place as an important method in education. Intrinsically there is no such thing as a primary center except the child himself. He possesses native impulses that reach out toward the field of knowledge, and in every direction. It is difficult to imagine a child to be without varied interests. Did you ever see a boy who failed to enumerate his possessions, investigate the interior of his automatic toy, delight in imaginative tales, applaud mock heroic deeds, and appreciate beautiful objects and right action? If the child lacks normal development and has not the apperceiving mind for the various departments of knowledge, create new centers of apperception and interest, cultivate the neglected and stunted powers. The various distinct aspects of the objective world suggest the selection of studies; the nature of the mind suggests the manner in which the elements of knowledge are to be organized. The parts of a subject must be distinctly known before they are correlated; subjects must be distinctly known before they are viewed in a system of philosophy. Knowledge is not organized by artificial associations, but by observing the well-known laws of classification and reasoning. Moreover, all laws of thought demand that a subject be developed in a definite and continuous way, and that side illustration be employed only for the purpose of clearness. In practice the method of concentration can but violate this principle.

We may ask whether apperception, correlation, co-ordination, and concentration are anything but a recognition of the laws of association. The laws of association in memory are nothing but the law of acquisition of knowledge, as all

good psychology points out. These laws include relations of time, place, likeness, analogy, difference, and cause. Add to these laws logical sequence in the development of a subject, and you have all the principles of the methods named. Have these investigations an important value? Yes. They explain and emphasize pedagogical truths that have been neglected. Having performed their mission, and having added to the progress of educational theory, they will give way to new investigations. This is the history of all progress.

The subject of interest deserves a further thought. It goes without saying that all a man thinks, feels, and does centers around his own personality, and in that sense is a self-interest. But we are not to infer that therefore interest must be pleasure. We are born with native impulses to action, impulses that reach out in benevolence and compassion for the good of others, impulses that reach out toward the truth and beauty and goodness of the world without regard to pleasure or reward. These impulses tend toward the perfection of our being, and the reward lies in that perfection, the possession of a strong and noble intellectual, æsthetic, and ethical character. The work of the teacher is to invite these better tendencies by presenting to them the proper objects for their exercise in the world of truth, beauty, and right. Interest and action will follow, and, later, the satisfaction that attends right development. Whenever this spontaneous interest does not appear and cannot be invited, the child should face the fact that some things must be, because they are required, and are for their good. When a course of action is obviously the best, and inclination does not lead the way, duty must come to the rescue.

I am not touching this matter as an old ethical controversy, but because I am convinced it is a vital practical problem of to-day in education; am convinced that the pleasure theory is bad philosophy, bad psychology, bad ethics, bad pedagogy, a caricature of man, contrary to our consciousness of the motives of even our ordinary useful acts, a theory that will make a generation of weaklings. Evolution does not claim to show

that pleasure is always a criterion of useful action. Herbert Spencer in his *Ethics* says, "In many cases pleasures are not connected with actions which must be performed, nor pains with actions which must be avoided, but contrariwise." He postpones the complete coincidence of pleasure with ideal action to the era of perfect moralization. We await the evolutionist's millennium. Much harm as well as much good has been done in the name of Spencer by well-meaning teachers, and much harm has been done in the name of physiological psychologists; I would avoid a misuse of their noble contributions to educational insight. Listen to a view of physiological psychology with reference to the law of habit: "Do every day or two something for no other reason than that you would rather not do it. . . The man who has daily inured himself to habits of concentrated attention, energetic volition, and self-denial in unnecessary things, will stand like a tower when everything rocks around him and when his softer fellow-mortals are winnowed like chaff in the blast." The fact is, it is impossible to create character, energy, and success without effort that is often painful. This view is an essential part of my theory of educational values.

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II

THE ESSENTIALS OF A MODERN LIBERAL EDUCATION[1]

I beg permission to preface the main body of this address with two remarks, partly apologetic and partly explanatory. The subject brought before you this evening may seem to some quite lacking in that freshness of interest which promotes a flow of novel and entertaining thoughts. Only last February 20, in this city, an elaborate report from a number of experts was presented which dealt primarily with studies in elementary education. This report, however, suggested important modifications in that subsequent training of the smaller number which is traditionally esteemed worthy of being called a liberal education. And for some years past, not only in this country, but in France, in Germany, and even in conservative England, discussion has been rife over the order and the character of studies proper for collegiate and university students. In spite of writings and speeches innumerable, on the part of men and women most competent or very incompetent, it can scarcely be claimed by the non-partisan observer of this contention that agreement has been reached even upon the more important and fundamental of the numerous considerations involved. Yet how important it seems to us all to have some settlement of the contention! For the children of to-day will not meantime stop growing into young manhood and young womanhood; and the youth of to-day are constantly being converted into teachers of the generation following them.

The other remark which you will please consider as a part of my preface is the following: Education is one of those

[1] An address delivered before the Association of the Alumni of Western Reserve University, Cleveland, O., June 18, 1895.

subjects, which, from their very nature, do not admit of a very close approach to demonstrative argument. Neither from history, nor from our knowledge of nature and of the human soul, nor from study of the details of experience in the past, can we construct a science—strictly speaking—of education. Pedagogics will probably never hold a place among the exact sciences. We may, however, form comprehensive and defensible opinions on this subject; and these opinions will be the more entitled to respect and acceptance, as the mind holding them is itself genial and truly liberal, and is also acquainted with the truths of history, of nature, and especially of the human soul. I close this remark, then, by saying that, without pretense of drawing irresistible conclusions, much less of infallibility in argument, I merely offer for your friendly consideration some of my opinions.

But first of all let us see clearly just what the question before us really is. For I cannot help thinking that, while the spirit in which it is debated and the inducements brought forward are often much too narrow, the question itself is rarely defined with sufficient limitation. As to the very meaning of the question, then, I offer these three statements:

It is a liberal education the nature of which we are briefly to discuss. Now this term necessarily implies some sort of differentiation. Freeing it, as far as possible, from all false pride and also from jealousy and unreasoning opprobrium, the term must be held to signify something more than *mere* education. It must signify—let us frankly confess—education for the few as distinguished from education for the great multitude, or for the very many. The public schools, then, however supplemented by private generosity, cannot reasonably be expected to provide the body of the people with a liberal education. I wish this declaration, however, to be considered as different from the important and closely connected practical question: "What part should the public schools take in starting a few selected pupils on their way to a truly liberal education?"

Neither is a liberal education properly a technical education

such as our manual-training and trades-schools, our business colleges, and even most of our so-called scientific schools, aim to give. This may be admitted without in the least depreciating the character of the training given by these schools, or the value of the results which many of them produce. But if we mean anything distinctive by the words, "a liberal education," it is something more than such an education as these schools furnish.

We may now come closer to the meaning of the phrase by laying emphasis upon the word "liberal." Of course this word once meant, in this connection, such an education as befits a free man or a gentleman. On this account there is still clinging to our usage something of pride on the one hand, and of jealousy and odium on the other hand. For are not all men now equally free; and where is now the class of gentlemen, unique and distinctively so-called? By a justifiable turn of meaning, however, a "liberal education" may be defined as that which makes the free mind, which furnishes the liberalizing culture of the trained gentleman. And here it must be remembered that all specialists' studies have their peculiar prejudices and peculiar temptations—almost irresistible—to particular forms of narrowness. A truly liberal education ought therefore to tend toward the setting of the mind free from all classes of scholastic prejudices. It ought to work in the direction of freedom from the philologue's narrowness, from the "scientist's" narrowness, from the circle of such illiberality as distinguishes the mere student of economics, or of social problems, of psychology, or of theology.

But, again, I am to speak of the "essentials" of that education which is worthy to be called liberal. Now, amid wide disagreements as to what and how much the constitution of a liberal education involves, and as to the order and proportion in which its studies should be taken, there prevails the universal assumption that some things are entitled to be considered indispensable factors in this constitution. Important changes have undoubtedly taken place in opinion on almost all the subordinate points under discussion. The old-fashioned, substantial agreement as to what are essential subjects

of instruction in this particular form or degree of education has been of late largely broken up. There is even more diversity of view as to how far subjects admitted to be essential should be carried before specialization in non-essentials is permitted or encouraged. Scarcely any two curricula in any of the institutions in this country, which design and claim to afford a truly liberal education, precisely agree. Yet, theoretically, all are agreed as to the validity of a distinction between essentials and non-essentials. And, practically, certain subjects are everywhere required, at least to some extent, in the earlier stages of this form of education.

Once more, let it be borne in mind that the very inquiry as to what a "modern" liberal education should be admits the propriety, and even the necessity, of making changes in many of the factors of such an education. And here I must insist upon a distinction which has been of late almost wholly overlooked in all discussions of this subject. This is the distinction between a truly modern education and the recent great extension of the elective system in the education offered by the higher institutions of this country. That kind of freedom, or "liberality" if you please, which gives to the youth under education the choice of his subjects of pursuit, and largely of the order and manner of their pursuit, has been carried among us to an extent which astonishes the European students of educational problems. But neither the exercise nor the withdrawal of this freedom in itself determines the question whether the student is receiving a genuinely modern education. What is necessarily implied in this word modern I shall try to make clear in another connection. I now wish only to say that the term signifies some kind of change which shall adapt the so-called liberal education to the age, but that the particular kind of change required is by no means necessarily to be reached through an elective system.

And now as I inquire, "What, then, are the essentials of a modern liberal education?" "What studies must be pursued in order to secure, as far as possible, the truly free and cultured mind in accordance with the actual conditions of modern

life?" I find no insuperable difficulty in making up a fairly defensible opinion. For amid many and conflicting changes, all is by no means changed. History still lies back of us with its great lessons there, although we must undoubtedly take pains in reading them into clear and convincing formulas. The primary and essential facts and laws of man's environment—what we call nature, in which human nature has its setting, and in which human life develops with a certain reciprocity of influences—also remains the same as ever. And the soul of man, that which is to be educated; the real being whose culture to the point of highest freedom and perfection it is hoped by all changes in processes the better to attain; the soul of man is not essentially different in this boastful nineteenth century from the soul of man in the so-called "Dark Ages," or when Plato and Aristotle undertook its informing, purifying, and elevating.

From history, from nature without, and from the nature of the mind, I think we may confidently derive a body of rational conclusions as to what are the essentials of the most modern liberal education, or of all truly liberal education. And now, without making any show of argument, deductive or inductive, as though you could not avoid being convinced and agreeing with me, I will frankly state my own opinions and some of the reasons which, in my own reflections, support them.

A truly liberal education includes, I think, as essential to it, the prolonged and scholastic pursuit of three subjects, or groups of subjects. These three are language and literature, mathematics and natural science, and the soul of man, including the products of his reflective thinking. Any education which is markedly defective on any one of these three sides comes, so far, short of being liberal—of being, that is to say, the kind of culture which sets the mind most truly free, and which is worthy of the cultivated gentleman in the nobler meaning of that latter word.

It is difficult indeed to separate the scientific study of literature from the study of history, or to separate the proper pur-

suit of philosophy from the study of both literature and history. But in a qualified, though meaningful, way we may declare that the supreme expression of human mental life is in literature—of man's life, that is, of thought and feeling. To get the supreme expression of man in action, in the exercise of those activities which we somewhat loosely call practical, we must turn to the study of history. But literature is, of course, a certain form of human language, put on record so that the thoughts and feelings thus expressed can remain for other generations of thinking, feeling men to contemplate sympathetically and yet critically.

Language, then, is the only pass-key to literature; and to be a cultured student of language is the only possible way to possess the key which unlocks the treasure-house of literature. You will notice that I have used this important word in the singular number. I have not said that a liberal education includes of necessity the prolonged scholastic study of many languages, much less the glib-tongued use of many languages. It is undoubtedly a very convenient thing in these days to speak in several of the principal forms of human speech; it is even, if you please, a pretty accomplishment quite worth spending some years of time and some thousands of dollars upon. But it is not an essential, it is not even a very vital and impressive, part of a truly liberal education. The empty-headed hotel clerk, the boorish globe-trotter, the frivolous boarding-school miss, may have this accomplishment of languages, and not have the first rudiments of a liberal culture in language.

When, then, I speak of the prolonged and scholastic study of language as an essential of a liberal education, I have reference to acquiring the science and art of interpretation and the cognate science and art of expression. For the appreciation of literature can never come by mere untrained reading: I do not care to what kind of literature, or in what language expressed, you apply my denial. He who has made no such study of language as a liberal education implies cannot enter the inner temple of literature, he can scarcely cross the thresh-

old of its outer courts; for the key to the temple is the knowing how to get at the meaning of any literature; and the knowing how to get at the meaning can only be acquired by the study—not of many languages as many, necessarily, but of at least some one language as the supreme expression of human thought and feeling.

In order to illustrate and enforce my opinion I turn somewhat aside for a moment to the current discussions over the place of the ancient classical languages—especially of the Greek—in a modern liberal education. The larger part of the arguments used against continuing these languages in the place they have formerly held seems to me beyond all doubt justifiable. The answers which the defenders of these languages have most employed are scarcely sufficient to ward off or to foil the attacks of their opponents. At the same time I most firmly believe in keeping the ancient classics substantially where they have been in the scheme of a truly liberal education; and I do not believe in the proposed substitution of any of the modern languages for the ancient classics. These seemingly conflicting sympathies I harmonize by answering the inquiry, why Latin and Greek should be required, in a way far more satisfactory to me than that followed by the classicists themselves. The ancient classical languages, and especially Greek, are, on account of their very construction and on account of the superiority of their equipment, by far the best media for the study of language, for the acquiring of the science and art of interpretation, for the possession and use of the key to literature.

It seems to me that very insufficient account is customarily made of the difference between the man who has enjoyed and improved this part of a liberal education and the equally intelligent and serious man who is lacking here. The latter can never, try as hard as he may, read a choice piece of literature, of any sort or in any language, as the other readily can. The value of studying Greek, under skillful and judicious teaching, is not set at its highest even when we consider how choice are the stores of Greek literature which are thus

opened to the student, if only he can master—a thing possible to only a few professors of Greek in this country—the language so as to move about at all freely in its literature. That value is rather seen at its highest when we consider how in this way a man may be best trained in skill and interest really to get at a good piece of literature in *any* language—even in his own language.

An acquaintance of mine had some years ago a confidential conversation with the public servant to whom had been committed, for a long period of years, the engrossing of the bills proposed by the successive ministries of one of the most powerful and intelligent nations on the face of the earth. This work this official had done for two prime ministers, one of whom was a classical scholar, the other a man of literary training and tastes, but without a liberal education in language study. The clear-cut, intelligible, interpretable character of the bills drafted by the former were, as a rule, in marked contrast with the confused, uninterpretable, but "flourishing" style of the latter.

As a rule, the Japanese cultivated classes acquire the speaking and writing of foreign languages with an uncommon speed and deftness. But I never knew a scholar of that nation—no matter, we will suppose, how well acquainted both with Japanese and with English—who could furnish you an exact interpretation of either one of these languages in terms of the other. This inability is doubtless partly due to the immense difference in the so-called genius of the two languages. But it is also, I venture to believe, largely due to the fact that exact interpretation—the telling precisely what do you understand this to mean as a matter of careful construing—is not made a study among the Japanese in acquiring a liberal education.

For myself, I do not hesitate to say that if I had forgotten all I ever knew of the Greek language and of the Greek literature, its study would still be worth double the time it cost in making me able to sit down with a good book, in whatever language written, and let its author tell me just what was in

his mind and on his heart. I insist upon it that the practical consequences of retiring the study of the classical languages from the curriculum of a liberal education will be something quite incalculable in the way of wresting from those who call themselves cultured the key to every form of good literature.

It would scarcely seem necessary to argue that a somewhat wide acquaintance with, and fondness for, good literature is a necessary part of a truly liberal education. For theoretically few indeed are found ready to dispute this truth. But, in my opinion, this is one of the truths most likely at the present time to be left practically out of the account in making up our estimate of the studies indispensable to such an education. There is reading enough done—there is far too much reading done—by the multitude of the people and by the so-called educated classes. And of the making of many books, the gross, materialistic, sordid manufacture of something to be read—something, no matter what, if you can only so construct and advertise it that it will be read—there is no promise of an end. But the simple undisputed matter of fact is that *what* is read is not literature, and would, almost all of it, better be left unread.

It is somewhat shocking to discover how few men and women, even among those who claim the title of "educated," know or care much about really good literature. They read—the newspapers (Heaven pity them), the magazines, and the latest, most sensational novels. But with these persons there is little acquaintance or affection having for its object what is really pure, noble, and elevating in the world's best books. I regard it, then, as of the utmost importance to hold up a high standard of literary culture as an aspiration and aim of all those who would lay claim to a truly liberal education.

And here I will venture to speak quite frankly, though with perfect friendliness, concerning certain efforts of some of the modern devotees of a more purely scientific education. They are often obviously irritated at the distinction which has not as yet been wholly abolished between the degree of B. A. and the other degrees given at the end of courses which do

not emphasize in the same way the linguistic and literary side of culture. They think it unjust and intolerable that graduates of scientific schools, who have been serious and successful in their studies, should not be eligible—for example—to the distinction of Phi Beta Kappa, or to other similar distinctions. Now, speaking for myself, I certainly have no exaggerated estimate of the worth of titles or of membership in any form of learned societies. But I do care a great deal about the truth, and about maintaining in this country a high standard, a sound basis, and a comprehensive range, for the recipients of a liberal education. And in my opinion, anyone who claims that a larger amount of scholastic study of the physical and natural sciences can be substituted for studies in language and literature, so as to obtain in this way that kind of cultured mind which belongs to the intellectual freeman, is simply maintaining what, from the very nature of the case, cannot be made true. Neither bestowing nor withholding titles and membership in learned societies will alter the fundamental facts of the soul's life and development. Connected with these trifles, however, impressions and tendencies may be strengthened which will work a mischief to the cause of liberal education in this country from which it will not readily recover, even if a long time be allowed for the recovery.

I hasten at once, however, to say that prolonged scholastic training in mathematics and in the elements of the physical and natural sciences is also a necessary part of a truly liberal education.

The relation in which mathematics stands to the science of nature is somewhat akin to that in which language stands to literature. In a true and important meaning of the figure of speech, mathematics gives the key into the hand of him who wishes to make a scientific study of nature. The man who is to have any education whatever must have some knowledge of mathematics; he must know enough to be honest and accurate in his business transactions, if he wishes to exercise those virtues. To conduct well many forms of business one must know much more than the mere rudiments of mathematics;

while the successful pursuit of certain branches of mechanical industry and invention requires a considerable training in this branch of education. But it is for a certain amount of the scholastic study of mathematics, as a necessary factor in a liberal education, that I now plead. Much has been made, by the advocates of a high value for the mental training that comes through this form of study, of the kind of close deductive reasoning which it employs. Such an estimate is partially justified; although it has, I think, very often been exaggerated. Of more educational value is that training which mathematics imparts in respect of quickness of insight and deftness of handling bestowed upon set problems. To enjoy and to be skillful in attacking problems is a not insignificant attainment for any educated mind. For is not life one prolonged succession of problems that demand to be solved? To be sure, most of these problems are not of the mathematical order and do not admit of solution by the methods of mathematics. But it is a thoroughly good thing for a man not to be a coward or a sluggard when he is brought face to face with any hard problem.

The truly liberalizing power of mathematics, however, is felt only when two things are attained. The first of these is a certain amount of free and joyful movement in the handling of mathematical symbols and formulæ. The other is a certain grasp upon the beautiful ideas and the wonderful laws which are represented by these symbols and formulæ. A friend of mine, who stands in the very front rank of the world's great mathematicians (a rank so thin that two men could probably count its numbers on the fingers of their two hands), has recently declared that for him the higher mathematics is chiefly an æsthetical affair; and that no man ought to study it who does not rejoice in the beauty of the ideas with which it deals. Now, of course, it cannot be maintained that such very high mathematics shall be made a necessary part of all liberal culture. But in my opinion, everyone in pursuit of this culture should have to go far enough in mathematics to get some glimpse of the ideality, and the beautiful ideality,

of the world in which mathematical conceptions reign supreme.

Moreover, a truly liberal education implies enough knowledge of mathematics to use it as a key for getting at those more elementary and fundamental principles upon which external nature is built. A knowledge of these principles is itself an indispensable part of such an education. The extreme advocates of a scientific, as distinguished from a literary and philosophical culture, are accustomed to consider themselves as the only representatives of a really *modern* education. And it is undoubtedly true that natural science has only comparatively recently begun to come to the front as a claimant of rights—of something more than mere bits of tardily granted concessions. These advocates too often forget, however, that this is because natural science is itself so new, and is still so comparatively crude and ill instructed as to the most effective methods of liberal culture; is even so doubtful as to the actual results which it could show if the higher education of the country were more fully committed to its hands. For here again it is simple matter of fact that literature and philosophy were brought to a very high pitch of cultivation centuries before the first crude beginnings of real natural science were made. It is true also that the equipment and accredited method of these two-thirds of a liberalizing education are still superior to that of natural science. And now I wish I might be pardoned (though I am sure I shall not be) for saying that the products hitherto turned out, as the results of too exclusively scientific training, do not make me incline to trust the promise of substituting in this way something satisfactory for the more old-fashioned curricula. I have not observed that these products are actually men of a truly liberal mind.

On the other hand, I hold most firmly to the opinion that an interest in, and a knowledge of, nature which goes beyond that of the man who has merely the lower education, is a necessary factor in a truly liberal culture. Especially in *these* days it seems to me that no man is wholly worthy to hold the title belonging to such a culture who has not had a somewhat

prolonged scholastic training in natural science. Here again I make deliberate use of the singular rather than of the plural number; and I have said a training in "science" rather than in the sciences. This training implies such a course of study as will impart, in accordance with the average capacity, a conception of what is now understood by the term *science*, and of the recognized method of scientific investigation, so far at least as it is in the main common to all the natural sciences.

Undoubtedly, the larger part of the entire body of liberal culture will always consist of intelligent opinions to which it is difficult to give a truly scientific form, in the stricter meaning of the word scientific. Undoubtedly also—to repeat the remark of a colleague, a professor of physics—"most of the advances in science consist in correcting mistakes." Notwithstanding the hardship which would be involved in the effort to draw a fixed line between the region where opinion dwells and the domain ruled over by science, the character of the conception to which the latter word answers should be made clear to every educated mind. How often does one meet men of fine literary culture who still show no little bigotry, and commit not a few important mistakes, because they simply do not know what science really is. And again, if they wanted to attain knowledge on any subject which should be worthy of being called scientific, they simply do not know how to go to work; they know nothing about scientific method in the investigation of any subject.

It seems to me, then, especially desirable in these days that the somewhat prolonged scholastic study of natural science should be made a required part of every liberal education. And if I were asked that difficult practical question, "How much?" I should be inclined to answer—"Enough to give the student a pretty firm grasp on those fundamental physical principles upon which the world of things is built, and enough of the pursuit of some form of descriptive natural science to impart the training of the powers of observation and the habit of properly connecting newly observed natural objects

with groups of similar objects known before." I find myself disinclined more and more, on the other hand, to consider liberally educated, in accordance with the spirit and the needs of the age, any man who knows nothing certain of the fundamental things in physics, or who cannot turn a trained eye on at least one group of natural objects—be this group stars or stones, trees, flowers, ferns, or the human body, birds, beetles, the animals in the zoological garden, or those domesticated in the city house or back-yard.

I am also quite as firmly persuaded that a somewhat prolonged study of the human soul—of logic, psychology, ethics, and of those problems which have formed the themes of reflective thinking since man first began really to think at all, of philosophy, that is to say—is a necessary part of a truly liberal education. I find it difficult to understand how any man can attain the genuine scholar's *liberal* mind, who takes no interest in the processes and laws of his own mental and moral life, and in the progress and laws of the mental and moral lives of other men. If I were to argue in detail for a portion of these studies in the required work of every college curriculum, I think I could show how close is the relation they sustain to the most successful pursuit of every other kind of studies. Modern psychology is certainly making large claims and rapid advances, in the direction of proving itself an indispensable auxiliary to the entire group of liberalizing pursuits. Certainly no one of those learned professions, including the fourth profession of teachers, into which the great body of liberally educated youth annually pour themselves, can in these days afford to neglect the somewhat prolonged and scholastic study of the human mind; of the four, certainly neither the preacher nor the teacher. The former has been traditionally a student of philosophy. The latter is now compelled, even by the authorities in charge of our higher public and normal schools, to know something, in appearance at least, of psychology. It must be a truly humiliating experience for a college graduate, who has had no work in this subject as a part of his collegiate education, to be compelled

to sit down beside the girl graduate of the high school and get his lesson in psychology.

My task will doubtless be hardest of all when I insist on some philosophical study as a necessary part of a truly liberal education. Yet in my own opinion there is no other study which is so distinctly liberalizing as philosophy. Just to face these profound problems concerning the being of the world; concerning the being, the origin, and the destiny of man; and concerning God and his relations to the world and man's relations to him; just to know that there are such problems, and what they are, and something of how the soul of man has in thought and feeling responded to them, is of itself no small part of a liberal culture. And here I speak, not from theory alone, but from experience with several thousand pupils. I affirm without hesitation, on the basis of this experience, that it does make the mind more liberal, more serious, gentle, interesting, cultured, and vigorous, to have some face-to-face acquaintance with the principal problems of philosophy. As a cure of souls afflicted with those shallow and coarse views of life, and of its most profound, most mysterious realities which dominate the age and the land, there is nothing superior to this which I could recommend. It is true pastoral and soul-saving work to induct youth, who are in process of the higher education, into the calm and reasonable consideration of these problems.

These, then, as it seems to me, are still the essentials of a truly liberal education—now, as they have always been to some extent ever since the conception and practice corresponding to the phrase, a "liberal education," emerged in the life of the race. An appeal to the history of education would show that the more ancient authorities, as well as the reformers of education on the hither edge of the Middle Ages, and the most trustworthy writers on pedagogics in modern times, are in substantial agreement. The chief differences of opinion are differences as to proportionate values, as to methods and lengths of time, rather than as to the essentials of the higher scholastic training.

But now, very briefly, I wish to indicate my opinion as to how the emphasis should be laid upon the word "modern" in the theme we are examining. What changes are desirable in the course of scholastic training, to make it better accord with the modern spirit and the modern needs? For in spite of any seeming of extreme conservatism which the opinions thus far expressed may have had, I am a pronounced advocate of modernizing the curriculum of our liberal education. I do not believe, however, that the best way of accomplishing this involves either any further extension of the elective system in our American colleges, or the exclusion from their required courses of any of the essentials of such an education.

On the other hand, our effort should be directed toward meeting the increased and altered demands of the age, in the following ways. Some readjustment of proportions is plainly required in order better to adapt the college curriculum to these demands. It is not at all certain that any ultimate diminution is required in the actual amount of work now done in either of these three great branches of scholastic training by even the most exacting of our collegiate institutions. Within these institutions the relative—but not necessarily the absolute—amount of training in mathematics and in the classical languages will probably be lessened; while the amount of training given in natural science, and the acquirement of the modern languages so far as is necessary to a possible familiarity with the French and German literatures will be increased. The way to solve such a seeming paradox is, I think, steadily to improve our facilities and effectiveness in the teaching which precedes admission to college as well as during the college course. The ten years from six to sixteen are enough, and more than enough, to prepare the average mind for the most exacting of our American colleges. But alas! how much of this time is wasted, and worse than merely wasted, by the poor teaching that prevails in the intermediate schools. The case with them is far too much like the case with successive legislatures. If, with Milton, we may define

legislation as "hatching a lie with the heat of jurisdiction," must we not go on to say that the least mischievous work which each legislature does is to kill a considerable part of the brood hatched by the preceding one? And is it not true that, as the boy passes from one teacher to another in many of our public schools, a somewhat similar way of advancing his interests is experienced?

Now the men and women who have a truly liberal education must somehow sweep away these evils which lie lower down; and this as the best manner of clearing the ground for a progressive improvement in the adjustment of later studies to the modern changes of educational values. But if, in making this adjustment, we relax our hold upon what we know, by centuries of experience, to have a high degree of such value, and then prematurely substitute—especially if we do so wholly at the option of the pupil—a large amount of that whose value is as yet less a matter of long experience, I fear we shall not really raise our standard of liberal education. Practically, then, I think that, as fast as college time is set free by improvement in the preparatory education, that time should for the present needs be largely turned over to required work in natural science and in the modern languages. In this way it probably will not take long to bring about a more satisfactory adjustment of proportions among the three essentials of a modern liberal education.

Second: The education at which the college aims should meet the demands of the age by the fullest possible use of modern equipments and of modern methods. It is surprising how much of the objection urged against the required study of the classical languages is really based on the supposition that methods of teaching them, now almost obsolete, still prevail. The same thing is also true of the objections urged against the study of psychology, of ethics, and of philosophy as essentials of a liberal education. Looking back to the time when I was in college, I have no hesitation in saying that the teaching of these languages was, as respects the interest and effectiveness of its methods, on the whole superior to the

teaching of mathematics and the natural sciences. But what a change has really taken place since then in the methods employed by both these classes of scholastic pursuits! I am inclined to believe that, on the whole, the improvement of the methods of teaching Latin and Greek has been quite as marked as that made by the teachers of the natural sciences.

As to psychology and philosophy, whenever these subjects are in the hands of men who have themselves received a thorough modern training, the same claim can be established. Unfortunately, however, the impression still prevails widely that anyone can teach psychology, ethics, and philosophy who can read in advance of his pupils a text-book on these subjects—especially if he happens to have had training in a peculiar set of prejudices by having been a student of theology.

But in all three groups of essentials—in language and literature, in mathematics and natural science, and in psychology and philosophy—the present generation has seen more advances in equipment and in method than all the rest of the world's past history. What is chiefly needed, in order properly to modernize our liberal culture, is the possession of this equipment in the hands of *men* who know how to use it. Here I am tempted to make a side remark which has an important bearing on all higher educational development in this country. The conduct of many educational institutions and the estimate placed upon them by the American public are such as to depreciate the teaching functions. But in time it will be discovered here—a truth already better recognized in France and in Germany—that it is the character of its faculty which chiefly determines the rank to be allotted to any educational institution. Money and all that money will buy—immense sums of money and incredible extensions of equipment—are a necessity for the most successful promotion of liberal culture. But after all, these things, and all mere *things*, are subordinate to the man who knows how to employ them so as to develop in his pupils the truly liberal mind. And if he is himself illiberal, a bigot,—whether his bigotry be that of the philologue, or that of the economist, or that of the "scientist," or that of the advocate

of the new psychology,—the teacher may have boundless fame as a specialist, and unlimited enthusiasm for his specialty, but he is not wholly fit to take part in the bestowal of a truly liberal education. Never before was the need so great that the teacher should himself be a man of the widest intellectual interests and sympathies, and of the broadest culture.

It will be seen, then, that the changes in studies which appear to me necessary to meet the changes in the demands made upon the educated man are not to be sought in the character of these studies so much as in the proportions of each and in the method of pursuing them. These changes I believe should be in the main determined by those who have their education in charge rather than by the choice of those who are in process of being educated.

But beyond the liberal culture given to the average college-bred man, and higher up, lies the sphere of the specialist who puts his highly specialized pursuits upon the basis of a broad and well-proportioned, more general education. He who rises into, and remains long enough within, that sphere becomes one of the few most nobly and highly cultured. He is the liberally educated specialist—a man quite superior in respect of education, both to the specialist who has no thorough liberal education and also to the man who, having the fundamentals of a liberal education, has not also the special attainments of a master of some one subject.

I close the presentation of my opinions on this theme with a remark calling attention to its great practical importance in the near future of our country. We are all familiar with the often repeated thought that our national destiny is closely bound up with the education of the multitude of the citizens. This thought is, of course, true; and the significance of its truth may reasonably make all patriots serious; for the condition of the public education in the United States is very far indeed from satisfactory at the present time. Taking all sections of the nation into the account, we are an illiterate nation. And under political and selfish business influences,

even in the best section of the nation, there is much in our educational condition to cause shame and alarm.

But it is not the condition of public education, not the character and amount of training which the state undertakes to provide for every citizen, that is the subject of my present inquiry and solicitude. There is another truth respecting the relations of education to the public welfare, which, if less obvious, is no less important. The destiny of any nation is dependent on the character of its aristocracy; and the character of the aristocracy is dependent upon the kind of education which this aristocracy enjoys. I know that there is something which sounds unrepublican and un-American, in our ears, about such a declaration as this. But I should undertake to show from history that the welfare of any nation is quite as really dependent upon the character of its clergy, its lawyers, its doctors, its teachers, and the classes that have leisure, social standing, and wealth as upon the character of the so-called common people. I know you will remind me that the most liberal culture will not make the so-called "upper" classes good, or furnish true friends and trusted leaders of the people. But neither does a so-called common-school education make the common people good. Only as education enters into the sphere of the ethical, æsthetical, and religious life does it become a real safeguard of either the aristocracy or the multitude of the citizens. But it is just the peculiar potency of the truly liberal education that it can lay so much emphasis upon what is not merely necessary to live as a smart and successful citizen, but is rather necessary in order to enter into and possess the larger, richer, and higher life of the soul.

There is one other consideration which it seems desirable to connect with this subject. Rightly or wrongly, temporarily or permanently, there exists a widespread lack of confidence in representative government. Here in this country, where the powers of the representative bodies, both in the State and in the nation, are more extensive and unlimited for good or for evil than anywhere else in the world, this distrust is perhaps most strong and most on the increase. The simple truth

is that no class, neither the so-called laboring class, nor the cultivated class, has any large amount of confidence left in the men who make laws for them all. Municipal, State, and national legislative bodies are almost universally distrusted, feared, and despised. This is a fact, whether it is a fact that admits of rational justification or not.

There are plain signs that some form of virtual aristocratic government is likely to be widely established in reaction from the extreme evils of democracy—a rule of the *best*, in some meaning of the word "best." But shall it be the man "best" to lead the populace by deceiving them as the self-deceived or shrewdly hypocritical demagogue has done so frequently in the past history of governments? Or shall it be the man, or the corporation, or the syndicate, whose length of purse and elasticity of conscience best stand the drain upon it made by the demands of the law-makers; shall it be the rule, by bribery, of the plutocracy? Or shall it be the rule of the men of liberal minds, of minds set free from bonds of prejudice and of avarice, and well acquainted with those laws of nature and of the soul, of man as a thinking, speaking, social, and religious being, which it is the business of a liberal education to impart? I sincerely hope that our really governing aristocracy in the country will be of this third class. And it is in the fitting of this class for the life which lies before them as the genuine aristocrats that the supreme value of a truly liberal education consists.

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III

THE EDUCATIONAL THEORIES OF FROEBEL AND OF HERBART[1]

The last part of the eighteenth and the first part of the nineteenth century will always stand out clearly as the brightest period in educational development. The revelations of this productive era were more important than its revolutions. The most magnificent evolutions of the period were educational, not military or political. Among the many leaders of this era in the great work of educational reform, Pestalozzi, Herbart, and Froebel are the central figures. If all other educational literature were destroyed, the principles of these three men would still reveal all the vital forces that are molding the educational systems and methods of to-day, both in aims and processes. These men were all living at the same time, and their spheres of labor were not far apart. Pestalozzi was born thirty years before Herbart and thirty-six years before Froebel, and to him more than to either of the others must be given the credit of the educational awakening. He aroused Europe, and Herbart and Froebel must have been influenced by the favorable educational conditions into which they were born. Froebel undoubtedly owed more than Herbart to Pestalozzi, because he was a student and fellow-worker with him.

Many of Pestalozzi's educational principles had been revealed by Comenius and Rousseau, but Pestalozzi rediscovered them and discovered other principles for himself; and his ardent enthusiasm and deep, sympathetic love for childhood made educational principles living forces in a new and most impressive way. His schools became most suggestive object

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lessons, and through them his educational principles obtained a vitality that made them controlling forces, which started a much needed educational revolution. Herbart and Froebel were both more scientific than Pestalozzi in their methods of dealing with the subject of education. They worked out their systems logically and constructively; he was emotional and instinctive.

In their study of the child as the basis of a sound pedagogical system, Herbart and Froebel were in harmony in accepting the parallelism between the progress of the race and the development of the child. This idea was not original with either of them. Many of the ablest philosophers and theologians have held this view, and Rousseau and Pestalozzi had brought it within the range of educational discussion before the time of Herbart and Froebel. Froebel made more use than Herbart of this idea of similarity between the culture-epochs in the growth of the individual and the race. It aided Herbart to decide what instruction is best suited to the child, the youth, the man at different stages of his development; to Froebel it helped to reveal not only suitable material for instruction, but proper processes or occupations by which the child, the youth, and the man should define and increase knowledge and power.

Both Herbart and Froebel studied the child in order to lay down a system of education that would help to ennoble man and enable him to work out his highest destiny. They were fully in accord in regard to the true aim of education. Both made the development of moral character the great purpose of all education, and their study of the child was made to find the surest way to reach this desired end. There was a radical difference, however, in their attitude toward the child. Herbart studied the child to find the best that could be done for it; Froebel studied it to learn how it could be aided in working out its own best development. Herbart magnified the work of the teacher; Froebel magnified the work of the child. Herbart made instruction and Froebel made self-activity the source and cause of growth in knowledge and character.

This difference of view-point leads to the chief distinction between the work of these two great educationists. Herbart discusses the work of the teacher, and shows what should be taught to the child, when it should be taught, and why it should be taught, with occasional suggestions as to how it should be taught. Froebel, on the other hand, considers chiefly the work of the child, and endeavors to lay down a complete system of education, by which the child's entire nature may be called into vigorous exercise. Froebel keeps constantly in mind the work of the teacher, and he has clearly defined ideas regarding the order in which knowledge should be presented to the unfolding mind; but the basis of his pedagogical system is growth through self-activity of the child. He discusses the same problems as Herbart, but he reveals the child's part in the work of education, and tries to show the teacher how to guide the child in doing its own work without interfering with its spontaneity. Herbart improved the work of his predecessors, Froebel revolutionized it.

President De Garmo summarizes the work of Herbart under three heads: "(1) The development of a system of psychology capable of immediate bearing on the problems of teaching; (2) the scientific application of this psychology to education; and (3) the revelation of the possibility of making *all* the activities of the schoolroom, including especially instruction, bear directly upon moral character." Even those who differ from Herbart in regard to the foundation-principle of his system of psychology must recognize the wonderful ability with which he expounded it. His analytical power is simply marvelous. He sees all sides of a question clearly, and sometimes explains the details of opposing or qualifying principles so profoundly as to leave one somewhat doubtful as to the course of action recommended. A complete series of educational maxims, covering the general fields of discipline, training, and teaching, might be made from his writings. Certainly no other writer has given dignity to so many commonplace theories; but, on the other hand, no writer has made a closer analysis of mental operations.

Even those who reject the Herbartian theory of soul-growth by the accumulation, enlargement, and modification of ideas will be ready to acknowledge the fairness of the claims made by President De Garmo in his summary of Herbart's work, with a slight explanatory statement. The third claim may be misunderstood to mean too much. The expression "all the activities of the schoolroom" means infinitely less as applied to Herbart's system than when used in relation to the system of Froebel. With Herbart it refers chiefly to the work done under the specific direction of the teacher, but in Froebel's case it always refers specially to the self-activity of the pupils. The phrase, "including especially instruction," shows that in Herbart's system it is the teacher's work, "especially the work of instruction, that bears directly on moral character." Herbart makes this very explicit throughout all his works, and summarizes his entire pedagogical system in two brief sentences: "Instruction will form the circle of thought, and education the character. The last is nothing without the first, Herein is contained the whole sum of my pedagogy."

Having laid this foundation he is naturally led to rely on the doctrine of interest as the central element in his pedagogical system. Interest, desire, action, will, is the order of the sequence of human development in his psychology. The doctrine of interest has been expounded by Herbart in a way that leaves little room for enrichment by his successors. With him interest is no passing fancy, no temporary attraction to things or subjects. It covers the whole ground of knowledge and of sympathy; "knowledge of the manifold, of its law, and of its æsthetic relations; sympathy with humanity, with society, and the relation of both to the highest Being." He describes interest as: "The joy of life, and the elevation of soul which knows how to part from life." He makes it, in the language of one of his greatest interpreters, Ufer, "the root of volition." He has been severely criticised for making action lead to will, instead of accepting the commonly accepted idea that will leads to action, but those who dissent most strongly from his views regarding the relationship of will and action,

may learn quite as much from his pedagogical use of interest as those who are his most ardent admirers. Opponents as well as disciples may have their ideas enlarged and defined by Herbart's discussion of interest, many-sidedness of interest, proportionate many-sidedness, empirical interest, speculative interest, æsthetic interest, sympathetic interest, social interest, religious interest, absorption, and reflection.

Herbart's system made instruction the basis of virtue. Ufer crystallizes Herbart's teaching on this point in the sentence: "When instruction has generated knowledge that incites to volition, and that is controlled by ethical ideas, its task is done."

It is easy to see how essential it was for Herbart to insist on apperception and correlation or concentration of studies. Apperception to Herbart meant more than the accumulation of knowledge, or even of new knowledge allied to what was already in the mind. It meant mind-awakening, mind-activity, mind-defining, and mind-enlargement, not by accretion but by assimilation of the new knowledge with the corresponding mind content, to form a greater mind content which should be a unity and not an aggregation of related ideas.

Froebel's educational system rests broadly on two great laws: the law of unity, and the law of self-activity. His fundamental thought was unity: unity in the elements of individual power, physical, intellectual, and spiritual; unity in the exercise of human powers, receptive, reflective, and executive; unity of the race, unity of man with nature, and unity of man with God. This law of unity led Froebel to insist even more strongly than Herbart on the perfect articulation and harmonious correlation of studies. He criticised severely the lack of unity in the studies of the school he attended when a boy, and endeavored to remedy this defect in a school in which he taught while a student in Berlin. In all his after-work he made unity an essential. He made this law of unity the basis of his kindergarten system. Every detail of his system in the gifts, occupations, games, songs, and stories, is related to this central thought. To those who see behind the material and

the occupations, the kindergarten is the objective embodiment of true concentration, and Froebel strongly urged that this same principle of correlation should dominate the arrangement of school programmes, and the methods of teaching in the schools.

Froebel's view of the human soul was directly opposite to that held by Herbart. Froebel believed that the child has within him a self-active soul, an element of divinity, the selfhood or individuality of the child, and that this develops by being put forth in gaining a knowledge of its environment, and in performing the duties pertaining to the social relationships. These opinions led him to discover his law of spontaneity or self-activity, which he made the underlying principle of all his developing and teaching processes in the kindergarten and in the school.

He did not mean by this law of spontaneity that the child has to acquire all knowledge by himself without the aid of the teacher. He gave instruction its true value. He did mean, however, that no instruction really becomes a content of the child's mind in the highest sense until the child has made a creative use of it in some way. Froebel's lessons always have two parts, the instructive and the creative. The teacher gives new instruction, and immediately the child makes an original use or application or modification of it. In this way, by his law of self-activity, Froebel secures to the fullest possible extent active, co-operative interest, and the most productive apperception. The child must be more interested and more definitely attentive when using knowledge than it can possibly be in receiving knowledge. Executive attention must be more developing than receptive attention, even if the pupil acts in carrying out the plans of the teacher; it becomes still more productive when the pupil executes its own plan or carries out its own design.

Apperception, too, is more complete when the child is self-active than at any other time. The mind-content corresponding to the new presentation rises to the surface to receive it with greatest energy in response to an impulse to definite

action in producing or accomplishing a creative purpose. In this way the assimilation of new knowledge with that already in the mind becomes most perfect, and the mind content so produced responds with greatest freedom, and with most vital intensity, to the subsequent presentation of a new idea. The superiority of the active apperception of creative self-activity over the relatively passive apperception of the most interested receptive attitude of the pupil's mind, results therefore from two causes: the mind acts with more potency in the first apperception, and the resulting mental content possesses more perfect homogeneity and more responsive energy. The executive tendency of the mind secured only by self-activity is a most essential element in character.

In discipline and training Herbart was much more coercive than Froebel, although less so than most of his predecessors and some of his successors. He made a much larger use of compulsion, both in forcing attention to study and in controlling the conduct, than Froebel. Froebel recognized the selfhood of the child as the true source of interest, and the surest controlling force. He would not check effort, because he desired above all else positivity of character. He would not stop the current of real individual energy, he would change its direction when it was wrong by changing the pupil's center of interest. His constant purpose was to secure reform and progress through the child so that it might become self-directing and self-progressive. Herbart recognized with great clearness the necessity for control; Froebel saw the harmony between spontaneity and control, "the perfect law of liberty." Yet Herbart acknowledged the individuality of the child. He wrote many wise things about it. He says, for instance, "The teacher ought to make it a point of honor to leave the individuality as untouched as possible." He criticises severely those teachers who "dominate the feelings of the pupil, and holding him by this bond, unceasingly disturb the youthful character to such an extent that it can never know itself." But even his disciples acknowledge the fact that there is at least an apparent incongruity between his conception of the mind of

the child as built up "entirely of presentations," and a true recognition of individuality. Herbart himself saw this. It is clearly impossible to give individuality its full recognition when the conception of the soul is reduced to the smallest possible degree. The more the soul idea is limited, the less important does individuality become, and the more potent does the teacher become as a decider of destiny. Froebel's conception of the soul as an element of Divinity in the child, gave him a reverence for individuality so profound that he demanded of the mother and teacher two things for the child: freedom, and opportunity for creative activity in applying and extending the knowledge gained by experience and instruction.

The characteristics of the systems of Herbart and Froebel may be summarized as follows:

Both Herbart and Froebel made high moral character the great purpose of education. Herbart limited the original capacity of the human soul to one power: "that of entering into relations with the external world," or as De Garmo defines Herbart's idea, "he assigned to the soul merely the capacity of self-preservation." Froebel regarded the soul as a germ of Divinity that must inevitably develop in power and that should develop by its own creative self-activity. Herbart studied the child to mold it; Froebel studied it to guide it in its growth. Herbart studied the child as a philosopher; Forebel studied it as a sympathetic friend. Herbart's recognition of individuality was limited by his conception of the inherent powers of the soul; Froebel's idea of the child soul necessarily led him to reverence individuality as the central element in human development, and as the thing that made the increase of human power desirable. Herbart saw the need of control much more clearly than the need of freedom; Froebel saw the harmony between freedom and control. Herbart made instruction the basis of virtue; Froebel made morality depend on true living in the home and in the school, on the awakening of the ideal as a counterpoise to the sensual and on the recognition of and reverence for the life principle in and behind nature. Herbart made will result from action;

Froebel made action result from will. Self-activity developed the will according to Froebel, but the will increased in power as the result of its exercise in causing creative self-activity.

Herbart's contributions to pedagogy are a matchless discussion of interest, a thorough exposition of apperception, and a philosophic foundation for co-ordination of studies so that they may produce the most definite and most beneficial results on character. Froebel revealed the law of creative self-activity as the source of growth, including in it the most intense and most certain interest and the most perfect apperception; and the law of universal unity, in which unity of studies (correlation or concentration) was definitely recognized, although it is not the most important part of Froebel's comprehensive idea of unity.

Froebel's chief influence on educational forces rests on his recognition of woman as an educational factor outside of the home as well as in it, and his extension of the period of training by providing his comprehensive kindergarten system for little children. The kindergarten is an objective illustration of the results of reverent child study, which has undoubtedly led to the universal interest in the systematic study of the child which, during the past ten years, has become the most prominent characteristic of educational investigation. Froebel also influenced educational thought and practice to a large extent by his use of play as an educational force. Others had recognized the value of play, but Froebel was the first to organize play as an essential element in training. Herbart aimed to produce in his pupils the spirit and the power of co-operative and productive activity. In this ideal he was the peer of all other educators except Froebel, and the superior of most of them. Froebel's ideal was co-operative, productive, and creative self-activity.

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IV

REPRESENTATIVE EXPRESSION IN NATURE-STUDY

Education is the natural and symmetric development of thought and action. The poise and strength of the individual are determined by the mutual relations sustained by these two correlative aspects of character. At the focus of all operations of natural law upon the being there is a resultant in thought; the endeavors to live in accord with the law find a common resultant in action. All efforts to realize thought through action produce tangible results in expression.

The infinite possibilities of human growth under the free play of thought and action have never been witnessed. But a prophecy of what they may be can be learned from a thoughtful study of a little child. Within the first six years it becomes a prodigy in acquirements and in power. Its acquisition is great because its open soul, without the obstruction of prejudice or the bias of false training, has freely admitted all the influences amid which it has lived. It has a marvelous power, because, absolutely unfettered, it has in its own weak but genuine way realized its every thought through direct action in appropriate expression. Parent, teacher, philosopher, alike stand amazed before these attainments in childish growth—attainments never again equaled in a like period of time. But the initial purposes of the new life have been wrought at a tremendous disadvantage. It has encountered every obstacle that can thwart a human being, except one, the deadly influence of tradition. Within the same period of his greatest achievement, one-half of all those who were born with him have gone to untimely graves, the unimpeachable witnesses to the uniformly low vitality of early years. Of those who survive, their muscles are untrained in definite action, and they are seriously

lacking in strength. The vision is blurred, the hearing confused, the touch undefined. Yet, despite the treachery of all the senses, and the weakness of all his parts, the child enters the school with garnered wisdom and presents himself to the teacher a free, bold, and self-reliant soul. Such is the magnificent work of nature.

A decade passes in the schoolroom, and he has become, in the language of Emerson, "timid and apologetic; he is no longer upright; he dares not say 'I think,' 'I am,' but quotes some saint or sage. He is ashamed before the blade of grass or the blowing rose." The fall of man is complete! He goes forth into the world with the sources of his true nurture dried at the fountain and with shackles upon those limbs that once rejoiced and were glad in their freedom.

The fundamental fact that the schools must henceforth recognize, is that thought and action are inseparable. It is a primary proposition in modern psychology that every thought tends to produce a movement or to check one—in either case tending toward action. The application of this one law, alone, is destined to revolutionize all our present methods in education. It means that every action required in the schoolroom must have behind it the stimulus of intrinsic thought. It means that every genuine thought must be allowed to have its free and full expressive action.

The introduction of nature-study into the common schools proposes, as its final purpose, to establish around neglected childhood the natural environment which the laws of its growth would seem to require; to retain that environment about the being throughout youth and maturity as the fundamental conditions upon which manhood must rest; to cultivate an intelligent knowledge of all the influences that play upon him that he may the more closely determine their value and their dangers. It is not to be a mere tonic for the senses; but in the search for the profound adjustments of the being in the present, with the purpose to transmit nothing but the highest truth to the future, nature-study enlists the entire soul.

The relation of expression to the work of representation,

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and its relation to that of presentation, are both organic and of equal importance. The merit of *representation* depends upon the character of *presentation*. When the methods of presentation are in accord with the nature of the being, all difficulties in representation rapidly disappear. All modes of presentation will harmonize with the instructor's idea of how the mind is to receive what is offered. If the usual treatment of nature-study may be taken as a guide, the ordinary conception of the mind in its receptive aspect is exceedingly crude and ill-defined. Apparently, in sympathy with the Baconian doctrine that "there is no stond or impediment in the wit, but may be brought out by fit studies: like as diseases of the body may have appropriate exercises," at one time a feast is prepared for the senses; at another time an offering is made to the intellect through which it is hoped to reach those civic and economic aspects of character that stand related to the social, political, and commercial adjustment of the race. The fervid and sometimes sentimental appeals to the æsthetic and moral aspects of character are supposed to rest upon still different grounds. As a natural result of this arbitrary and disconnected presentation, man's expression partakes of the same heterogeneous character. The attempted representations of sense are lifeless forms; those proceeding from the intellect may find tangible form in arrant knavery; the moral nature finds satisfaction in the blind genuflections of fast day, and the æsthetic nature vapors itself away into imbecility.

The fragmentary and unsatisfactory results in representation are wholly due to wrong and misdirected efforts in presentation. The mind cannot be worked over by piecemeal. It cannot be educated in sections. Nor is it possible to develop its powers from without to within in a serial order. It is vain to proceed upon the theory that the various functions of mind can be trained in separate schools and afterward be united into a living whole. All the manifestations of mind in its development, like those in the growth of a bud, proceed from a common and all-controlling center. In the presentation of a subject of study, therefore, it is of primary and funda-

mental importance that this center of organization be reached if the consequent action is to be rational and the expression intelligent.

The controlling center in the mind of a child, and a dominating one throughout life, is the æsthetic sense. The child's earliest and most general classification of all things is the beautiful and the ugly. Long before the relations of utility, long before those of morality, the æsthetic relations make their appeal and find a warm and sympathetic response. Of first importance is it, therefore, that all things which he is to study shall be presented to the child from the standpoint of the beautiful. Woe betide that which, in the mind of childhood, finds a doom in a place with the ugly; the early instincts will long hold their sway against years of mature reason and philosophy. The ugly can never find a welcome in human consciousness; the only pretext by which it may receive even temporary audience is the plea that it has been misapprehended or misunderstood. The mind naturally gauges the eye to receive nothing but the harmonies in nature, and it attunes the ear to receive nothing but her symphonies. The first commandment in nature-study is to seek first the beautiful in nature, and unto it all else shall be added.

All study may be resolved into an effort to acquire knowledge of relations, with the ultimate purpose of determining the natural law of the phenomena according to which those relations are established and maintained. The æsthetic unction of the mind is aroused in nature-study in several ways, to the diversity of which correspond the various physiological means possessed by the organism for receiving external influences. The different modes of presentation through which the various relations reach the mind are form, color, sound, odor, taste, motion, and adaptation. Of these different varieties, representative expression has to deal directly with form and color, and, indirectly and partially, with motion and adaptation. The fundamental presentation which is implied in each of the others is form. The mind receives the phenomena, and perceives the relations of form

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chiefly through the fundamental sense of touch, the sense from which all the others are derived. By this means, the following data are fixed in the mind: (1) The structural qualities of the substance involving cohesion and texture. (2) The properties of matter through its resistance; that is, its hardness or softness. (3) The mutual relations of those planes in which the object finds its spatial limitations; that is, its shape. (4) The absolute and relative extent of the planes of limitation; that is, its size. (5) The general character of the limiting surfaces; that is, its smoothness and roughness. (6) The direction, extent, and mutual relations of those lines in which the limiting planes meet; that is, the outline of the object. These data originally are derived through the sense of touch. Experience, however, enables the mind to perceive these relations by inference, and with incredible rapidity, through sight. But, in case of doubt, touch alone is competent to give the final confirmation or denial.

The very earliest æsthetic response in the child is probably aroused by the smoothness of the object. The gentle contact of the velvety hand with a smooth surface and the crooning response of the young babe, even while still enshrouded by the mists of unconsciousness, mark the opening of that organic circuit in the being which is for a few short years to be a channel of transfer and direction for the mysterious forces of the world. The feeling in consciousness due to the arousal of the mind's æsthetic function is one that each being can appreciate but cannot definitely and adequately describe. Nor can it be explained why, under certain presentations, the æsthetic feeling is aroused; but the conditions necessary for its awakening can be definitely stated. It is likewise true that, just as the feeling may be reached through different avenues of sense, the action which proceeds from it is not discharged through one channel, nor always through the same channels; it therefore happens that there is in full expression great variety and the possibilities of much completeness in the realization of all the beautiful and ennobling thoughts that may find birth in the soul. In the past, the nature of the instruc-

tion given to children has effectually choked up nearly all the channels of action except that afforded by language, oral and written, and the result is that the great majority of people are not only incapable of doing the work of artists, they are incapable of having artist's thoughts. Worse than this, through the long disuse of so many of the means that naturally minister to the mind, many persons have become almost incapable of having any kind of thought at all.

Where several different modes of expression are being permitted, there is a wrong conception as to the advantages to be derived from the variety. Each one is treated as if it were a direct repetition or counterpart of every other one. Against this the instincts of the pupils rebel. If a child has already expressed himself through language, he knows by the instincts of common sense that it is folly to merely repeat himself in a drawing or a model, and it is useless to ask him to do so. The various modes of expression cover one another to some extent; nevertheless the motive which should actuate him in making his drawing or model should be to express what his language did not and could not portray fully. The reason why pupils do not more freely and more willingly move from one mode of expression to another is wholly due to a faulty and indefinite presentation. An interesting illustration of the darkness in which many teachers labor is found in the endless and utterly bootless discussion as to whether pupils begin naturally with the *outline* or with the *mass*.

As previously hinted, the conditions under which form appeals to the æsthetic sense may be somewhat definitely stated. One of these seems to be that the outline shall be made up of lines in which curves rather than angles are the prominent features. Another is that opposite parts shall present similar though not necessarily exactly the same aspects. The unsymmetrical appears in nature more frequently than the symmetrical, and it is usually much more admired. A third condition is found in the nature or condition of the bounding surface. There is no question but the æsthetic feeling is

immeasurably enhanced through a knowledge of the adaptation of the form. It is through the function of form that nature-study may be made to take its most powerful hold upon the mind of man. In the manifold adaptations of her various forms, Nature has made use of every line, of every curve, and of every pose that is known in the domain of art. The adaptations in form through which nature is allied to art are all of mathematical exactness; all are determined by a mathematically exact balance of the forces of nature. Art and mathematics, therefore, are not antagonistic; they are not even independent of each other, because they stand organically related. A common but mistaken conception of mathematical form is that it is always *regular* and *symmetric*, as in the case of the cylinder, cube, cone, and triangle. Yet the unsymmetric leaf, graceful and of artistic outline, and the twisted trunk of a tree represent none the less mathematically exact forms. The mighty orbits of the heavenly bodies are not more truly mathematical than is the devious path cut through the air by the butterfly in its wavering flight. The feathery snowflake, finding its way to the earth by an inconstant course, is leading the whole world and every other body in the universe through the same uncertain kind of dance. The mathematical relations of matter are never lost or absent; and a rational study of form demands that they be taken into account, whether they be considered from the standpoint of science or of art. The regular form may be conceived as being the result of the equal and symmetric distribution of forces about it; the irregular form represents an unequal or unsymmetric distribution, of the forces, internal and external, but both forms represent a balance of the forces and stand at their mathematical center. This magnificent world has been so richly endowed that even the dullest and most stupid of mortals may appreciate some of its beauties; but for him who by natural gifts and education is able to look through the outward appearances and recognize the laws by which the beautiful retains its delicate poise in nature, the feelings are enhanced a thousand-fold.

It is not more difficult to say why a given presentation arouses the æsthetic feeling than it is to determine why this feeling gives rise to action. The general purpose of action seems to be an effort of the being to place himself in a finer harmony with his environment, and to maintain a perfect poise amid all his delicate relations. When one rests on the brow of a hill at the close of day, and looks across a broad valley, through which winds the course of a silver stream; as his soul bathes itself in the light reflected from cloud, hilltop, and woodland in the myriad tints and shades of a summer sunset, his every action is to the end that not a voice of wooing nature shall be unheard, that not an influence shall be obstructed or unheeded. And when, with brush in hand, this rapture finds its realization upon canvas, that the present exaltation of his soul may not be wholly lost, and with the purpose to have all mankind in all time know something of what he feels—then, upon that spot and in that hour, is an artist born.

The presentation of form through the sense of touch involves the three dimensions, and the corresponding expression of these spatial relations is found in making and modeling.

Making is the most elementary from a psychological point of view, because of the absence of all symbolism. It involves exactness in size and shape, and requires the use of the same material that is in the object presented. It is, therefore, of fundamental importance that children be allowed free and unobstructed expression by this means. Practically, the chief difficulty lies in the nature of some of the materials it may be necessary to use. The pupil can acquire expression by making only as he progresses in a knowledge of how to use certain tools, and in an acquaintance with the grain of wood, the texture and hardness of iron, and so forth.

Modeling calls for the three dimensions, and also requires exactness in form, but may be independent of size and material. It is therefore partially symbolic; the realization of the thought is less complete than in making. As a mode of expression, however, it has the very obvious and decided

advantage of allowing a choice of such materials as can be easily manipulated by children, and its practical value is therefore very great. The simplicity of these two modes of expression is due to the fact that the representations in both cases correspond as exactly as may be to the objects as they appear when revealed through touch. The judgments derived from touch are taken by the mind to be conclusive, and the corresponding representations are unquestioned and definite.

The mind, however, receives presentations of form not only through touch, but, through the medium of light, acting through the eye, it is enabled to have certain judgments of form by sight which are derived from color. Those judgments which arise from the *limitations* of color involve the subject of outline. The presentation of form through sight involves but two dimensions, length and breadth, and consequently the spatial relations which appear in the corresponding representative expression must all lie in one and the same plane. By reason of the differences in the *quantity* and the *quality* of light which the eye receives, the experienced mind is able, through the great variety of color, tint, light, and shade that is thus presented, to infer the third dimension. The so-called practical demands of life are, therefore, continually compelling the mind to express the judgments of sight in the same terms and in the same forms in which it expresses the judgments of touch. The constant censorship of the touch over the sight judgments has almost obliterated the latter from the consciousness of most people. The consequence is, there is a almost universal lack of ability to employ those forms of representative expression, drawing and painting, which deal primarily with sight judgments. It is of immense importance to have children begin to use these forms persistently at a very early age. The child's experience does not at once compel him to translate his sight judgments into those of touch; the two modes of presentation are distinct, and his expression corresponds. It is a well-known fact that a child does not trouble himself about perspective, and yet his crude drawings and paintings of landscapes will show it from the first. This

has been explained sometimes by saying that children *see* perspective, better than do their elders. The truth is, they do not see it at all, as commonly understood, or, at least, but slightly. They see and represent the displacement of the objects, right and left, above and below, with due regard to relative size, light, and shade, and perspective takes care of itself. It is true that even by the time the child has reached the age which admits him to school his touch and sight judgments are already much confused as to objects which are near to him. With regard to objects some distance away, as a rule, the judgments of sight are accepted as they are. The subject selected for study should, therefore, not be too small or too close; it is vastly easier for him to represent a grove of trees a quarter of a mile away than it is to express similar spatial relations in a group of blocks on the desk before him.

The spatial relations perceived by the mind through sight find representative expression in painting and drawing. Painting has to deal primarily with color relations and secondarily with those of form in two dimensions. Drawing has to deal wholly with form in two dimensions, as shown by the limitations of color, that is, with outline. Except in the case of purely mechanical drawing and diagrams these two modes are never wholly distinct. In every painting there is more or less drawing, and in every drawing where lights and shadows occur the essential feature in painting appears; that is, representation of mass or surface. Notwithstanding that the two modes of expression have much in common, there is one point of radical difference between them. In a drawing, dealing with outline, the pupil must represent the object *minus* everything else in space: in a painting, dealing with the color relations, he must represent the object *plus* everything else in space. In drawing, the object is shown by isolation; in painting, it is shown by association. This distinction in representation is based upon a corresponding distinction in presentation which teachers, as a rule, totally ignore. The object that is being studied is presented ordinarily in precisely the same way for both the drawing and painting lesson, although the pupil may be supposed

to express very different relations in the two exercises. The difference in the two modes of presentation, that is here insisted upon, may be effected by proper attention to what is called the background of the object. To be placed properly for a drawing the object should be presented in empty space, or as nearly so as possible. This may be simulated by placing behind the object a plane surface of such color as will most sharply contrast with that of the object. Usually the effect is produced by a white sheet of paper. When the presentation is thus made with due regard to what is to be expressed the pupil will naturally begin with that which stands out most clearly before him, to wit, the outline. On the other hand, if the pupil is to express the color relations of the object by a painting, it is evident that the object must be so placed as to show him what its natural color environment is.

But it happens very frequently that in preparing the object for a painting lesson—that is, preparing it so that the pupil may see and express color relations—the teacher arranges the object exactly as he would for a drawing lesson, with a strongly contrasted and absolutely uniform background. The result is that nearly all of the so-called painting is nothing more nor less than drawing with a brush and color instead of with a pencil. The pupil usually follows the law by which color limitation is expressed and begins with outline, and is naturally very much perplexed when the teacher explains that he should begin with mass. But when the presentation is made with the object in setting of its natural surroundings, the outline is always softened down, and he begins to represent that which is directly presented, namely, the *mass*. In a proper presentation of color relations, it is necessary to observe a rule similar to that laid down above touching perspective. Those objects which are small and near the pupil, especially within his reach, have their outline strongly defined for him through the sense of touch. Under such circumstances the touch judgment will most likely overpower that of sight, and the representation will begin with outline. It is advisable, therefore, with beginners, to have the objects at such a dis-

tance that the sight judgments may not be thus obscured by those of touch.

From the foregoing, it will be clear that the various modes of representation are not repetitions, but that each has a distinct function that corresponds closely to a particular phase of presentation. And if it be true, as is here maintained, that the mind can *retain* its power to receive given presentations only on the condition that the feelings so aroused have full play in expression, then, in the light of what the schools have done and are doing, it is no longer a mystery why ninety-nine people out of a hundred go through this world with eyes seeing not, and ears hearing not.

The fundamental rules which govern all modes of presentation must, of course, be derived from the mind's inherent capabilities for receiving them. The cause of nature-study has suffered immensely on account of the teacher's ignorance of the laws according to which the mind acts in its receptive capacity. The outward presentations all come to the child-mind as *great irregular, undefined wholes*. From the whole he goes to the parts, and step by step to the minutest details.

From the undefined he proceeds by mathematical judgments to the definite; from the irregular, he proceeds by similar means to the regular. The pupil's representations, of whatever form, must always correspond to this order of development. The so-called, and egregiously miscalled "bad work" of beginners in all forms of expression is the only natural basis for good work. The careless freedom with which the pupil's mind receives finds an exact correspondence in the way the body acts. He must be permitted to see great organic wholes and then be allowed the freedom of large surfaces in expression. As a rule, the practice of teachers is directly the opposite. The pupil has been required to look at a leaf when his soul longed for a landscape; he has been completely disgusted with the near when he might have been enchanted by the distant; by the study of the lines and angles in cylinders, cones, cubes, and prisms, his mind becomes stiffened and benumbed, when it might remain pliant and sensitive through the study of

nature's forms. Through the use of his fingers he has been distressed, when through the use of his arm he could have been delighted.

This reversal of the natural process with childhood would seem to receive its only sanction from a mistaken application of the axiom that the mind must proceed from the simple to the complex. The landscape, by reason of its thousands of details which it is known to contain, has been adjudged the complex; while the leaf, with its comparatively few details, has been thought to be the simple. But to the child the landscape is by far the more simple; for him it exists as a great irregular mass of color, which finds its first crude representation in a blotch; but the sinous contour of the leaf, the straight lines and the angles of the prism give him infinitely more trouble, because in their symmetry and exactness of proportion they are to him vastly more complex. The attempt to introduce the study of form to childhood by a presentation of geometric figures, the fixed and highest generalizations of form, is to reverse every law by which the mind reaches the truth.

Each mode of expression has its own intrinsic worth, but it does not follow that they take equal rank in the study of nature. The central point never to be lost to sight in nature-study is *life*—the living thing. The whole of the subject may be included in a consideration of the origin of life, the conditions of life, the development of life, and its destiny. In these various phases of study, representation by making is of least importance, relatively. Its use is wholly confined to preparation of conditions for study. The next highest in the scale of importance is modeling. The infinite diversification of form among living things makes the application of this mode of expression almost universal, while the rare grace and beauty of the forms lift the representations by models to the plane of the fine arts. But the highest and most splendid possibilities of expression in nature-study must be conceded to be through color. Life everywhere manifests itself through color. Form may be living or dead; but the color bespeaks life with as much certainty as does motion. Color is even as the breath of life; not only

does it distinguish the living from the dead, but it mirrors forth in changing tints every varying shade of health or disease. The withdrawal of color is the earliest warning that nature has issued a summons for ourselves or loved ones, and its restoration is a bow of promise to the anguished heart. Everywhere the fading and glowing of color mark the rising and falling of life. Would you gain some conception of the forces of life? Look forth over the drear landscape of winter and prophesy the spring. All the ravishing loveliness that comes into your picture enters through the portals of life. The dissections of form, down to the minutest fiber, do not more clearly display the magic of life.

Science, therefore, no less than art, makes the demand that nature shall be studied through color as well as form. Science no less than art aims at nothing short of the fullest realization of the soul of the man through the highest action. This realization is not reached when machines are constructed, when railroads are laid, when steamships are built; but only when, through these marvels of genius, man comes to know and feel that that which in him is, is a part of the infinite and eternal; that his highest duty is to hold himself in due submission to those laws that bind him to the wondrous whole. The child who begins naturally with the great aspects of nature—the cloud, the mountain, the forest, the sea and air—will at last strain his eye through the microscope in his efforts to penetrate her most inmost secrets. How puny the conception that to express nature is to copy her! How preposterous the supercilious conceit that, pandering to a debased ignorance, makes an effort to improve her! Nature is neither to be copied nor improved, but to be completely realized in self.

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V

THE IMPORTANCE OF PHYSICAL TRAINING IN CHILDHOOD

Professor C. Lambroso has recently said very truly that "man detests new things and tries his best to escape, and only yields to overpowering necessity, or acquired usage."[1] These words are peculiarly applicable to everything concerned with the education of children, which, one would suppose, might easily be adjusted to meet the requirements demanded by a better knowledge of the child itself; yet, as a matter of fact, it is only modified with considerable difficulty. Traditions or superstitions once acquired rule the mind with overpowering force, and reason alone is hardly strong enough to dislodge them. They have been slowly evolved out of some innate need of the organism, and will continue to maintain their supremacy until driven out by some more recently developed need of a still more urgent character.

Many years ago, it will be remembered, Froebel wrote: "We cannot separate the body from the mind and soul, of which it is the outward expression; but in the beginning of life the intellectual and spiritual nature exist only in the germ, and the physical nature, with its instincts and necessities, plays the prominent part. If, then education is to act as a guide to natural development and not as a hinderance, it must take this fact into account, and, during the first years of life, devote itself chiefly to calling out and cultivating the limbs and senses, which are intended as organs of the mind and spirit, so that when the latter begin to act they may find fit instruments to work with."

Such were the wise words of Froebel, written perhaps half a century ago. Can anyone say that the standard he set up has

[1] "Atavism and evolution," by C. Lombroso, *Contemporary Review*, July, 1895.

been practically attained? Is it not true that people in general are still dominated, to a considerable extent, by the old idea that children are backward in their education unless they begin to learn from books when they are not more than five or six years of age? The reply will be made that the principle *is* recognized; that we have in the kindergarten an answer to questions of this character. It may be granted that the *principle* is recognized, and that kindergartens strive to apply it, but I think the qualification must be added that the recognition is chiefly limited to teachers, and the comparatively few kindergartens make little lasting impression as yet on the education of the total mass of children.

It is not the fault of the teachers that this is the case, but is due to the ignorance and blindness of the public, who are still in the bondage of the old traditions that children go to school to have their minds developed, and not their bodies, and time spent in the training of the latter is misspent and wasted. They cling to the delusion that the school possesses some supernatural power, by means of which natural physical processes can be reversed or abandoned, and the child forced to do mechanically in the school what no earthly power could accomplish outside of it.

In these days of child-study by psychologists, and the discussion of physical training by specialists in that profession, it might at first sight seem that I underestimate the progress made in the education of children. I should be sorry to give a wrong impression, for I think progress has been made, but it is still too much in the theory and discussion stage, and the schools receive too little appreciative support from the public, largely from the ignorance of which I have already spoken. Very much yet remains to be done before any of us, especially parents, clearly comprehend what the early education of the child demands in the way of physical training, and before we have sufficient courage of conviction to practically make use of such knowledge.

In early life, it must be remembered, the child learns by muscular, and not intellectual, observation. Objects can best be

understood by actual contact with them, and seeing them used. If the infant could only have his own education carried on by the methods which he used at the beginning of life, he would often be a much stronger individual mentally, than when he is taught by the more empirical method of parents and schools, which aim at results, without due regard to causes. The infant accepts nothing on trust; he must know what things mean; what they are for; how they feel. They must become part of himself, as it were, and have no dim, vague, uncertain meaning. He rejects everything which does not in some way further his ends; that is, he must see the utility of what he does, as bearing on his object. He has the advantage over the ordinary adult, of knowing what he wants, and he takes the most direct path to get it.

The infant, strictly speaking, is a scientist pure and simple, for he proves all things, and accepts only those which are of direct value to himself. If he could lay out his future education, no doubt he would continue to pursue the direct method of self-instruction, and have a thorough and intimate knowledge of such subjects as he undertook to investigate. But alas! he is obliged to submit to the caprices and eccentricities of a system of education which assumes that he came into the world with a well-developed body, and mental and moral faculties, able to assimilate about anything the adult thinks he should know.

This sudden interruption of the process by which he was slowly, but normally, developing, breaks up that logical continuity of thoughts and ideas, and the resulting power of concentrated attention, which he would have ultimately acquired. He loses his place, as it were, in the book of nature, which he was laboriously reading, and is taken further and further away from a proper realization of himself, from what things mean, and what his relation is to them.

If he could progress as he began, he would go no faster than he clearly understood what he was about, and would not slide from one thing to another by some obscure rule of thumb, learning little by the way. Such knowledge as he had would

be moderately sure, fixed, and ready for use. He would intelligently appreciate and employ the adaptations of means to ends, and would have an unconscious, but satisfied confidence in his capacities.

I suppose we are all willing to agree that the true object of education should be the formation of character and the making of good citizens, morally, mentally, and physically. But in practice we are still apt to forget this, and act on the theory that it is the acquisition of knowledge. If we do not forget it, we regard it as a remote end, secondary to other ends, and with a moderate degree of attention, pretty sure to take care of itself. The test of the method pursued is: how much does the child learn, and not, how thoroughly is he in all ways being prepared for life.

That the tide is turning, and many educators, and a portion of the public, are beginning to have a clear appreciation of the true meaning of education, I have no doubt, but there is still far from being any correct comprehension of the underlying foundation of all education, life itself, namely the correct training and development of the body.

We have long recognized the fact, psychologically, that habit was largely responsible for correct, or vicious, methods of mental action, but it has only been within recent years that we have begun to realize the dependence of mental action on physical habit. Some of the recent advances in the knowledge of nerve tissue demonstrate very strikingly that all nervous action, from the highest to the lowest, is the result of *habit*. We have now what seems sufficient evidence for believing that each nerve cell, with its processes, constitutes a concrete unit, or a nervous system, so to speak, by itself.[2] No cell exists without processes, but no cells, or their processes, have direct connection with any others. Such an arrangement of nervous matter allows a plasticity far more extensive than we had hitherto suspected, and raises the question as to how the nerves, with their processes, became so interactive as to finally

[2] "Relation of the cerebral cortex to sensation," by W. H. Thompson, M. D., *Journal of nervous and mental diseases*, June, 1895.

perform certain special functions together. "Habit" is, in a word, the answer to this question; "afferent habit" is the origin of special function in these nerve units, or "neurons," as they are called. "In time, habitual impressions, followed by corresponding habitual reactions, became opposed to non-habitual impressions, and thus give origin to the great function of inhibition, without whose constant influence no permanent organization would be possible."

The plasticity of the brain cortex for acquiring function is shown by the acquisition of speech. "This function is located in only one hemisphere, evidently through habit alone, determined in the first instance by the greater use of the right hand in gesture language. The corresponding areas in the other hemisphere, not being used, remain functionless in this respect."[3] When a child learns to use its hands or its feet, it may be developing areas for sensation and motion which were not originally endowed with those functions. Dr. Thompson closes his carefully prepared paper by quoting these words from Waller: "We thus picture" (referring to foregoing remarks on experiments on monkeys and dogs) "the cortical organs in a semifluid state of differentiation, still variable by new instruction, rather than a petrified and invariable collection of specialized organs tied down to particular functions."[4]

The function of *inhibition* which has been spoken of in these remarks is of such importance, and is so often referred to in scientific works, that I think it desirable to make its meaning clear, in this place, for the benefit of those to whom hitherto it has been a rather vague term. Dr. C. P. Bancroft several years ago wrote an interesting article on the attitudes of the insane,[5] in which he very well defines inhibition "as a *restraining power* which is implanted in the mind, and incorporated, as it were, in the nervous mechanism of the individual." Once firmly fixed in the nervous organism, it acts almost involun-

[3] Op. cit.

[4] Op. cit.

[5] "Automatic muscular movements among the insane; their psychological significance," by C. P. Bancroft, M. D., *American journal of psychology*, February, 1891.

tarily and habitually on presentation of the proper stimulus. It is exercised in a twofold manner: *first* in checking irrelevant trains of thoughts, or what is not pertinent to the subject engaging the attention; and "*second*, in checking certain muscular movements, which, though they naturally succeed the stimulation that has preceded them, still for the time being and with other objects in view, are out of place."[6]

Whether we have, as yet, fully reached a satisfying physical explanation of inhibition, is a question outside the purpose of this paper. It must be regarded as a *result* to be achieved by the development and cultivation of correct habits. The part it plays in the mental and physical health of the individual cannot be overestimated. If the object of general education be to develop the "power of suspending *judgment* in the presence of an emotionally exciting idea," as I believe has been said by Professor William James, the object of physical education must be to develop the power of suspending *action* under conditions of untoward, or unusual, *muscular* excitement. In reality we are always on the road toward getting control over the functions of mind when we are training and disciplining the body. Every time the brake of inhibition is put on to slow down, or regulate over-hasty or unsteady muscular action, a gain mentally has been made. Professor Royce has well said that "there is no thought which does not tend to run out in our muscles or action. Self-restraint is as much conduct as self-direction. Education makes a man's reflexes into character, or system, or conduct. There is no thought without some group of sensations."

In alluding to the wonderful plasticity of the nervous mechanism, my object was to call attention to the opportunities, here presented in a stronger light than ever, of influencing, guiding, and molding cerebral and resulting mental development, by efforts made from without. Here are extensive territories of nerve matter, unused and unorganized, capable of growth and progress. Let habits be formed in any direction, and they become a part of the permanent nervous equipment,

[6] Op. cit.

which can easily be added on to, and more and more fixed, for as Carpenter has well said, "Our nervous system grows to the modes in which it has been exercised." We must never forget that bad habits are even easier to form than good ones, which can only be developed under conditions of persistent and prolonged training. These conditions, it may be said in passing, are not easy to create and maintain at the present time, when the social atmosphere is somewhat devitalized by a tendency to luxury, ease, and self-indulgence, and physical weaknesses are not overcome by sterner care and discipline, but palliated by enervating pampering and coddling.

Assuming that we have reason to believe that the mature life of the individual depends, or may be made to depend, very largely on the kind of physical training or education he receives in his early years, the question that confronts us is: How can we best apply these ideas? Before we can do this very intelligently, I think that we must have a more exact knowledge of the physical data of childhood and youth, and this can largely be accomplished by adopting a system of bodily measurements and observations. For instance: the height, width, diameter, and circumference of the head can be measured, and a record made of anomalies of the ears, eyes, nose, skin, hair, palate, and teeth. Facial expression and cranial asymmetries can be noted. A few measurements can also be made of the limbs, special care being taken to record errors of co-ordination. In addition, some of the "nervous signs" detailed by Dr. Francis Warner of London may be looked for, and finally defects of nutrition described.[1]

The objection will at once be made, that such an examination will require far more time than any persons at present engaged in the education of children have at their disposal. It may be said in reply that much less time would be required

[1] In suggesting such a plan as the one outlined, I do not mean to ignore the observations which have been made, and are being made on children by scientific investigators. My object is to put something, as it were, directly into the hands of the teacher, which will make it easier to understand the child, and the kind of education he needs. Incidentally statistics may be gathered, and deductions grow out of them, but such is not the primary purpose.

than superficially appears. In many children there would be little, if anything, to record, and in those remaining, not more than fifteen or twenty minutes need be required, on the average. But how can time be better spent, I would inquire, than in determining in what way a child is defective? So far we have been guided too much by tradition in estimating bodily defects, and have never learned with any degree of accuracy the connection between these defects and mental weakness. What we are destined to do, when we have perfected our methods of observation, is to forecast the child's mental future from his present physical condition. And what is still more important, and worth all the effort and time expended (and this will answer more fully the question about the expenditure of time), we are to learn how to influence and modify that mental future, by efforts to overcome defects existing in the present.

To bring about a result so promising in its benefits to mankind, I hold that we must educate public opinion so that there will be in general a clearer and more definite, and I may say, easier comprehension of what a normal, and what an abnormal, child is. And the first step in this direction must be a closer and more intimate knowledge, on the part of the teacher, of the simple anthropology of the child. This cannot be acquired in a reliable way by haphazard or hasty observation, but by the use of instruments of precision, carefully thought out methods, and cumulative experience. In the end a physiognomy of defect will impress itself on the mind of the teacher, which will be of immense benefit in aiding to develop the discriminative capacity to determine how to deal with children as individuals, and not averages.

The primary object of such a series of observations, as I here suggest in outline, and which I assume would be made at the earliest school age, would be to determine, as precisely as possible, what form of education or training the child was ready for. In some cases he would be found, perhaps, too immature and infantile to leave the nursery. In others he would be able to enter the kindergarten; in a third class of cases he

would be found too undeveloped to take more than the simplest exercises in the kindergarten, though he might be even six or seven years of age. A fourth class would be composed of children unable to do anything in the kindergarten, and hardly able to go through the most primitive exercises.

The grading of the different kinds of children having been once accomplished, the problem would be a simple one, and would be largely reduced, in the latter two classes at any rate,— for I am not discussing the kindergarten system,— to a consideration of the question of how best to train them physically. Such a training no doubt would begin with attention to food, dress, bathing, etc., and would at the same time very carefully and slowly seek to develop the large muscles of the trunk, arms, and legs. Next in order would come the hands and feet, the mind not being much called on at the beginning. The fingers of these children would be under- rather than over-trained, but the hand in general would receive the most watchful care. What it did it would learn to do thoroughly and well; and in the same way the feet would be drilled until they began to respond accurately and quickly to what they were called on to do.

The plan of training here suggested is similar to that advocated near the beginning of this paper; that is, it is the one Nature would follow herself in the education of the child. He would get his first lessons in translating the meaning of things in the world about him; it would be through the use of his hand, through the sense of touch. In the healthy child the rôle the hand plays in mental evolution is somewhat masked by the general harmonious action of the entire organism, so that one part does not stand out conspicuously superior to another part; it is therefore instructive to turn to the education of the idiot, if we wish to understand the importance of the training of the hand.

In the idiot the hand is almost always abnormal, or to use the more common expression, anomalous. Seguin[8] has

[8] *Idiocy; and its treatment by the physiological method*, by Edward Seguin, M. D.

described the hands of idiots as being too short and clumsy or spindle-shaped; fingers truncated with unfinished nails; thin and glossy, like quills, with little pearly nails; articulations so stiff they can hardly be moved, or so loose that they can hardly be fixed; tissues bloodless, or darkened with stagnant blood. Yet these hands, poor as they are, Seguin calls the "organs of prehension," and adds that "their incapacity puts a barrier between the idiot and everything to be acquired."

To educate the idiot's hand takes unlimited time and patience, for it is often nothing more than a block of wood, yet it can be and is trained, little by little, until finally, through its intelligent action it reveals to its unfortunate possessor something of the meaning of his environment. The results that such training achieves lead Seguin to exclaim in a fine burst of enthusiasm: "The hand is the best servant of man; the best instrument of work; the best translator of thoughts. The most skillful hand is yet, in respect to certain realizations, as it were, idiotic; our own hand shrivels before we suspect the thousands of ideas it might realize."[9]

The time spent on training the idiot's feet and legs is also very considerable. As he fails to understand the meanings of things he touches until his hand is trained, so he fails to be brought into other relations with the world, until he has some control over locomotion, and can stand firmly on his feet.

All this kind of training of idiots has a deep significance, for it shows how much can be done with a slender capital of muscular force, carefully and rightly developed by degrees, over long periods of time. No demands are made on the idiot's mind at the beginning, because he practically has none. The lesson which this should teach us in the education of dull, slow, and defective children, as well as children in health, should be to train the body first; approach the mind through the hand, and wait patiently for results, which will pretty surely follow.

Once more, and as my concluding word, I would urge a deliberation in the early mental education of children, espe-

[9] Op. cit.

cially in the case of the slower and duller ones, for they are slow to overcome or outgrow defects. We must get over the idea that they should be ready to enter certain grades of schools at certain ages, if as now all are to be taught together, for the defective ones may be years behind the bright ones. The best chance of all is not to be hurried, for the bright ones will learn all the better in late years for prolonged, early physical training, and the defective ones will only tend to develop their inherent weaknesses without it. When the time comes that we give such training its full value in general education, we shall see evolved a better type of child, and an improved average of mental work.

To recapitulate: the effort has been made to point out, first, that the importance of physical training in childhood is not as yet sufficiently recognized. Second, that if the natural method were followed, the body would be trained before the mind, in the early years of life. Third, that recent discoveries in the structure of nerve tissue show an almost unlimited degree of plasticity. Fourth, that the special functions of nerves and nerve cells largely is the result of habits formed from without. Fifth, that inhibition is the chief factor in regulating brain action. Sixth, that on habit depends mental, as well as physical development. Seventh, that to apply physical training to greater advantage the teacher must have a clearer idea of the physical data of the child, which can be acquired by a system of simple anthropological observations. Eighth, that such a system would lead to a more careful grading of children at the beginning of school life. Ninth, that it would further lead to the natural method of developing the child, by beginning with the training of its large muscles, and gradually working up to the hand. Tenth, that the idiot furnished the most striking evidence of the dependence of mental development on physical training. And eleventh, that capacity, and not age, should determine when and how to begin the child's education.

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VI

DISCUSSIONS

A DEAF CHILD OF SIX

More than twenty-seven years have passed since the deaf and dumb began to speak in America, and since that time every year has shown a gain in the methods employed in teaching the deaf, no longer dumb, the use of speech. A very interesting phase of this work is the teaching of very young deaf children, babies yet in the perambulator, first lip-reading and later speech itself.

The case of a child, now six, who is personally known to the writer, seems interesting enough for publication. The child was born deaf, and, until he was two years old, was treated exactly as any other child is treated, because, until that time, his deafness was not known to his family. When it was known, a teacher was given him instead of a nurse, and this teacher, while performing nurse's duties for eight hours every day, used every art in her power to make the child look at her lips. Everything she did she talked about. Everything the child did she talked about. Everything the child wanted she talked about before she gave it to him. Little by little the child learned to watch for and expect the movements of her lips which he found to be the unvarying accompaniment of work and play, food and rest. After a time he began to perceive that the motions were not all alike, that when his warm milk was coming the lips did not shape themselves in the same fashion as when sleep was expected of him. So, bit by bit, as any other baby learns to understand what is said to it long before it can talk, this deaf child was taught to understand many ordinary words and phrases, and day by day he grew into the knowledge that the ordinary means of communication among human beings is speech.

At three, then, the child knew that people talked, and had acquired the habit of watching them while they talked. Just how much he understood at that stage will never be known.

From three to four he had no regular teaching, but his family talked to him incessantly, and he watched them.

When he was four years old a regular teacher of articulation came into his home and taught him. His progress was marvelous. He learned that all things in the world have names, and it seemed as though he would never be satisfied until he had learned them every one. "What is that? what is that?" he said all day long, and "Where? where? where?" *Where* was the first question which he learned, and he made it do duty for all questions. "Where?" with him meant "Why?" and "What is that for?" and "Tell me about it."

In four months' time he had acquired sufficient use of speech to receive stories from one person and tell them to another person with sufficient intelligibility to make himself understood when the subject-matter was unknown to the hearer. He did not use sentences, only words and phrases somewhat in this fashion: "By and by Christmas;" "Papa, give sister doll;" "Papa, give brother gun;" "Papa, give mamma pin;" "Papa, give baby [himself] boat." The teacher, in telling him facts, used ordinary, simple language; neither abbreviating nor lengthening sentences, nor moving her mouth unnaturally. It is not meant by this that she simply talked to him; on the contrary, she *taught* him constantly and after the most approved methods, but always with as little divergence as possible from the lines followed in the education of hearing children.

At the end of ten months the child had a usable vocabulary of six hundred words, and understood many more than that when they were used to him. Adverbs and prepositions he used very little, pronouns not at all, but in various ways he showed that he understood them when others used them. He made no sentences himself at this stage. He conveyed ideas by means of words, that was all.

When he was five he went to school,—a school for the deaf,—and continued to have private instruction at home. Early in this, the sixth year of his life, and the second of his instruction, he began to make sentences of his own accord and to use words which had never been taught to him, but which he had picked up in his intercourse with his family and friends. He learned to read, too. The year before he had learned to recognize written words, but this year he learned to find pleasure in written and printed stories, although he never cared for them

until they had first been told to him by word of mouth. A remarkable fact about his reading was his remembering new words. If, in his conversation, the need for a certain word came, he could invariably select the right book and turn to the page where he had seen that word used. For instance, when he came across the picture of a storm-beaten ship, and could think of no word to express his thought concerning it, he hunted up a book containing hundreds of monosyllables arranged according to sound, and turned the pages until he found the word "wreck," whose meaning had been hurriedly explained to him *once*, weeks before, and announced, "The ship will be a wreck."

It is impossible to say how many words he used at the end of his second year of instruction. Some idea of the amount of language he understood, and of his power of lip-reading may be gained from these topics, which were used in oral conversation with him: Balloons, caves, grizzly bears, the Rocky Mountains, Esquimaux, polar bears, icebergs, palm trees, monkeys, camels, the desert, Africa, crocodiles, black men, Indians, campfires, the State House, policemen, soldiers, Memorial Day, Fourth of July, battles, ships-of-war, whales, etc. These are taken at random, to show the ground covered and the sort of subjects which interested him.

The child is six years and some months old now. He reads and writes and talks, plays games and asks questions. The business and the pleasure of his life are carried on by means of speech and lip-reading. He uses no other means of communication than speech in his intercourse with his little world, and feels the need for no other. If he wants to know the reason for anything, he looks to someone's lips for an explanation; if he wants to communicate a thought, the thought shapes itself to spoken words—spoken words which are intelligible to the members of his family and to his immediate friends. His voice is so low and soft that strangers find it hard to understand him, but this difficulty will disappear as he grows older.

Now this child belongs to the class ordinarily styled "deaf and dumb"—that is, born deaf, he would have been dumb without the speech which has been mechanically taught to him, and the language which has been built up for him, word for word, unaided by the sense of hearing.

This, the last decade of the nineteenth century, has many

wonders, and this matter of the "dumb" talking seems worthy to be classed among them.

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LANGUAGE READING FOR COLLEGE PREPARATION

We hear much of unity and uniformity in secondary education. In certain directions this uniformity is a great desideratum, but we should not raise (raze?) all things to a dead level, kill individuality, and deaden inborn talents possessing a bent of their own. The uniformity we need most is that of quantity and quality of preparation, as tested by the acquired ability for additional conquest.

Why does one college set for the entrance examination of 1896 *A winter's tale*, and for 1897 *As you like it;* while another college sets *As you like it* for 1896, and *A winter's tale* for 1897? In German, why should one college demand a hundred pages of a particular text of Grimm, another a given number of pages of a specified reader, a third a portion of some other text, and so on, *ad libitum?* This is certainly inconvenient for schools preparing for various colleges. But even with uniformity of date and text in all colleges, we should not be satisfied; for why should the instructor not be allowed to select his own texts of the prescribed grade of difficulty, and his own date for reading them? To some it is worth much to be free. The college will, of course, indicate the kind and the amount, and the teacher that is not independent, from lack of knowledge either of different texts or of the subject, will follow the printed instructions to the letter. But why not allow substitution to those desiring it? What possible difference does it make to the college professor of modern languages who asks for *Wilhelm Tell*, whether the pupil reads *Wilhelm Tell* or the *Jungfrau von Orleans*, or *Maria Stuart*, or *Wallenstein*, or *Nathan der Weise*, or *Minna von Barnhelm*, or *Egmont*, or *Iphigenie*, or *Faust*, or any one of a dozen other works that might be mentioned? And as for ordinary prose, why say that the pupil *must* read fifty pages of Buchheim's *Reader*—good as it may be—but that two hundred pages of anything else, even though more difficult matter, will not be accepted as a substitute. Indeed, we need uniformity in college requirements, but we want that uniformity

exhibited in the liberty of choice as to what text we shall read. Set the grade of difficulty and the amount to be well covered, but if the individual teacher wishes it, and is capable of judging, allow him substitutions. One finds, to be sure, reading matter that, with beginners, seems to work better than any other. But after the ground is broken, after some proficiency in translation has been attained, the field is almost unlimited, and the progressive, self-dependent, growing teacher reads different matter each successive year. In doing so he does better work; for he is more interested in what is before him. The same principle holds in Latin and Greek, though to a lesser degree, since the field is limited. If he is preparing pupils for institutions that allow no substitution, no change, the Latin teacher is truly an object of commiseration, bound hand and foot, a slave to *Cæsar*, and compelled year after year to pass over the same ground and gaze upon the same dry bones. The work of the secondary teacher is so exacting in mental strain, care, and anxiety that few, unless they make it count in the classroom, have either the time or the inclination for outside study and improvement. New reading matter, then, becomes with them an absolute necessity.

This brings me to the consideration of the entrance examination itself. In English, the chief reason for setting particular works for particular years is doubtless for convenience in making out the question lists. But even this reason will not obtain for foreign languages. Genuine sight reading may and should take the place of passages on set reading. I say *genuine* sight reading, for many colleges state that the test will be sight reading—that is, sight translation—and thus apparently allow substitution; but the examination papers show that passages are offered always from the works mentioned in the catalogue, which means that it is not sight translation at all for those that have taken the reading suggested for that particular college. In this case a pupil that has spent his time on only fifty pages may put in a better paper than one that has read five hundred pages without the specified fifty. There is no comparison, however, between the two in their ability to do advance work. This is an important factor in the right method of language teaching. New reading is of greater value than the one text often reviewed, for in repeated reviews the mind is not so alert, and less effort is put forth. Reviews are more for the poor student than for

the one that excels. But the poor student will average just about the same on review as on advance, and will work with perhaps a greater loss of energy than the good student, who does not need the review, and therefore is little benefited by it. Latin and Greek are not exceptions to this rule, and I am pleased to see that there are those that are of the opinion that, without increase of hours, three times as much reading should be done in Latin as is done at present.[1] In my opinion, more power is acquired by reading the twelve books of *Vergil* once than by reading the first six books six times. Yet I believe in one review to clear up doubtful points and to obtain a comprehensive view of the work as a whole.

Again, who is better fitted to judge of a pupil's preparation to enter college and continue work with his fellows, the teacher that has taught the boy for four years, and knows his whole history—faithfulness in preparation of lessons, punctuality in attendance, ability to do solid, though perchance not brilliant, work—or the reader of an hour's test, in which are all the elements of luck and chance? What, in fact, is the aim of methods and study in a school preparatory to college? Is it to prepare the pupil to pass an examination, or is it to develop and strengthen him so that he will be able to do his work well after he is actually in college? Surely, to pass the entrance examination is not the *summum bonum*, nor should it be the chief end in view. But, if the examination can be set on real sight reading of the proper grade of difficulty, the result will mean something, and combining with it a certificate from the fitting school, stating time of preparation, texts read, amount of exercise work and grammar study, and scholarship as shown by the grade attained, the examiner will have data from which an almost infallible decision may be reached. In the other case, with set work, what teacher preparing pupils for college has not known of a fairly good student's failing, while the drone of the class, the very boy that is so far snowed under as to be requested to repeat the year, if he continue in the school, chances upon one of the few passages he knows, and passes a fair examination? Justice comes later to the unworthy boy, but an irreparable injury has been inflicted upon the faithful but unsuccessful one. In a sight test, too, the lad devoted to illegitimate helps, to translations, and to keys, receives his reward.

[1] W. C. Collar, in the *School Review*, January, 1895.

The reply to all this will be that the college must protect itself against poor teachers. So it must; but a judicious use of this method, with the proper safeguards and the power of rejecting where experience or knowledge of circumstances shows it to be advisable, will prove as effective as any system yet devised for sifting the qualified candidates from the unqualified.

Then give us uniformity in the minimum amount to be performed, and uniformity, as nearly as possible, in quality and in degree of difficulty required, and uniformity in minimum time of preparation, but give us freedom in choice of matter, and in methods enough freedom for the display of individuality. In the meantime, *faute de grives, on prend des merles.*

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IS HISTORY A SCIENCE?

Can history be a science? In the first place let us agree upon a definition of science. It is the investigation of nature. Nature is the physical as standing over against the ideal. The material with which science deals is physical phenomena. "Nature and History," says Droysen, "are the widest conceptions under which the human mind apprehends the word of phenomena." The method of science is experiment and analysis. The spirit of science is to sit down with the object, the sense-fact, and hear its story to the end, then tell this story in causal order—adding nothing, omitting nothing. The story thus related is a science, perfect and complete. The pith of the scientific spirit is its objective character, the absence of purpose as well as all coloring of individual feeling. The scientist takes a measure of water and the analysis showing hydrogen and oxygen, his report is the bare formula, H_2O. This is a perfect piece of work.

Is the material of history like in kind to the material of science? Does it yield to the method and spirit of scientific treatment? "Historical material," says Droysen, "is partly what is still immediately present, hailing from the times which we are seeking to understand (remains), partly whatever ideas human beings have obtained of those times and transmitted to be remembered (sources), partly things wherein both these

forms of material are combined (monuments)." Manifestly the "remains" of a period are not the life of that period. That life is gone. Nor can we call it up again. That life did not grow from the "remains" present to us, hence we cannot, starting with these "remains," ascend back into that life. The original did not grow along this backward line. It is clear that the "remains" from a period do not stand to the life of that period as hydrogen and oxygen stand to water.

The next material of history is "sources." These are accounts of the life of a period, generally from eye-witnesses. Here we get nearer to the facts. We have a picture, not the remains, of a period. But the description of life is not alive. No analysis of a picture will find in it the elements of the life. We put into a picture all that we see in it. Thus in "sources" we have only that which the writer was able to understand of the period, not the period itself. We are twice removed from the period; we construe the construction of our author.

In the "monument" we have only the dead symbol of a period. The full, rich, struggling life is gone utterly.

It is now clear that the material of history is different in kind from the material of science. And we can appreciate the confession from the Harvard professor, "After all it is the power of arranging and combining his material which makes the great historian." That is, the work of the historian is not analysis, it is construction. The very heart of the scientific material is its objective character; it tells the one story, H_2O, to every human mind. On the other hand, the glory of the historical material is its subjective character. In every case it is that which had significance for men. Of the thousand deeds of a day not more than one passes up into history. Why is the one chosen and the thousand left? They were all genuine events; but one only had meaning for the historian. The material of history is the product of men. And the historian in every case selects from these products.

This brings me to consider the method of history. Can it be the method of science? The method of science is experiment and analysis; the method of history is investigation and construction. The method is determined by the material. And the material of history is human throughout—that is, it is subjective, and therefore individual. The historian never reaches an analysis, his result is always an interpretation—and an interpretation is a mental construction, a mental construc-

tion is colored through and through with the individual. The experience of the interpreter is the only light in which the event can be seen. We can get knowledge only by using the knowledge we have. We must use our own words, our own figures, our own system of thought, and we must look at the event from our own point of view. The "pure objective fact" is unknown in history. In no case can a man give attention to that which has no meaning for him; but it is no part of the original that it has meaning for me. Its meaning for me is a new event. "Meaning" is relation to experience. And since the experience varies with the individual, it follows that no event in history can ever mean exactly the same for two persons. This is an accepted fact in psychology. It is called the doctrine of apperception. Here we find an explanation of the fact that a Romanist and a Protestant will read a page and draw opposing conclusions. Neither makes an analysis; each takes from the page whatever has meaning for his system. Says Droysen, "In every case, however fruitful the investigation may have been, ideas arrived at by its aid are far from reaching the fullness of contents, movement, manifestness of forms, and of real energy which the original things had when they constituted the present." Further, "It is only in appearance that the 'facts' in such a case speak for themselves." It is now clear that the method of history cannot be the method of science. It is impossible from the standpoint of psychology.

In the third place, the spirit of history is not that of science. It is true that Ranke has laid down as the first essential in an historical work "that it be true, that is, that the things be reported as they are," and Hebbel has said that the highest art of the historian is "to reproduce the atmosphere of the time"; but I have shown that Ranke's "essential" can never be. Things cannot be "reported as they are"; they can only be interpreted so far as they have meaning for the interpreter. The report of life can never be the life itself. The historical spirit must not attempt the impossible. Its center is not the "pure objective fact." To quote Droysen once more: "Then surely he would have had to recognize that not past events, not the infinite succession of 'facts' which constituted them, now lie before us as materials for investigation; that instead these facts vanished forever with the moment to which they belonged, and that, as human, we possess only the present, the here and now, with the impulse and ability, of course, by

learning, insight, and will, to develop immeasurably this ephemeral point." The spirit of history is not the spirit of science.

History is not and can never be a science. Theology took history within itself; the result was confusion and barrenness. Then philosophy assumed the guardianship; the result was death to history. Now science is claiming the privileges; the result is a fearful loss to our culture. Just as life was deprived of all physical comforts so long as science was theological and philosophical, so our culture must suffer heavily so long as history is under the control of science. Let history be history, and let science content herself with her own material. What, then, is history? We must see first that it is not a science. Then and only then shall we learn what it is. And this is a problem for the historian rather than the psychologist.

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ARITHMETIC IN THE REPORT OF THE COMMITTEE OF FIFTEEN

The great debate which followed the presentation of the Report of the Committe of Fifteen seemed to have developed into an unfortunate dispute upon the philosophical dogmas of its authors, and to have ended in a quarrel as to which of two foreigners had the better system of philosophy, Hegel or Herbart. It will certainly be a misfortune if the Report is to be disposed of upon the general grounds of philosophy. We pedagogues of the schoolroom have learned by experience that, while the war of opposing philosophies is going on in the clouds, much of their common munitions of war, which are left lying around loose upon earth below, is frequently of value to us. It is to be hoped that the noisy disturbances of this war cloud will not frighten us camp followers from the Report itself.

The influence of the Report upon the subject of arithmetic is an interesting problem. We all know, without being philosophers, that there is something radically rotten in the state of arithmetic and of mathematics in general in the elementary school. It is a pedagogical skeleton in our family closet, and we do not care to open the door more often than necessary,

owing to the disagreeable odor of decay which ensuingly pervades.

The Report mildly suggests that the time allotted to arithmetic should be curtailed—a suggestion which, if age, as in the case of wine, enhances the value, is certainly a golden one. The suggestion, reasoning from the custom of its ancestors, implies that the plan forthwith submitted will reduce the time of servitude in the arithmetical treadmill from eight or nine years (with no visible results) to five years (with a plethora of results).

I do not believe it, for I do not recognize in the system proposed one at all at variance in essential principles with the existing system; and the Report does not touch the vital issues of difficulty and dispute. I do not believe it because the majority report, as a mathematical document, is unquestionably scholarly and rational; yet, as a pedagogical document, applicable to pupils from five to fourteen years in the elementary schools, the Report cannot but appeal to those familiar with children's difficulties and conceptions, as missing the point. Its feet do not touch the ground children walk on. But this is a principle, it is to be inferred from the discussion, that is admitted to a great extent, of the whole Report. Dr. Harris himself offered the very valid argument that education cannot be determined wholly from the standpoint of child-study; some attention must be paid to other considerations, notably the world of environment. But while the argument may be valid in certain cases recently put forward, it is not one behind which the majority report may take refuge in the case of arithmetic. Arithmetic is not a new study. It has not been subject to the tinkering tendencies of child-study. It has been the subservient slave of considerations external to the child for centuries. Amid all this firing of salutes over this newborn infant, child-study, no one has yet dared to allow the baby to play with arithmetic. The sacred dust of tradition upon its brow bears testimony to this fact.

The majority report cannot but cause the suggestion to arise that the author of its being has in some way got his telescope reversed, and is consequently reading the reflection of the arithmetic of his own brain projected upon the eyepiece, rather than the mathematical conceptions of children. "To count," says the report, "one drops the qualitative, and considers only the quantitative aspect." This definition is made

the corner stone of the treatment of the subject, and with naïve simplicity the author proceeds, his definition being admitted as a foundation, to show how the child builds from it mathematical conceptions. This definition is not to be questioned as the definition of a certain mental state in the developed brain of an adult and educated mathematician. But it cannot be intelligently admitted that such a definition at all defines the process in the brain of a child from five to fourteen years of age. It is the result of years of mathematical training. The child goes through certain nervous processes in counting to accomplish, within certain limits, analogous ends to those of the mathematician of adult development; but it must certainly be admitted that the terms of expression, in the two brains, are essentially different in content. In the child's brain there is every reason to believe that qualitative mental images form a predominating feature; while it may be possible that in the mathematician's brain counting has not a qualitative content. The majority report, in limiting its discussion to that form of counting which has dropped quality and established quantity as an abstract conception, at once has placed itself without the sphere of childhood, with which it is supposed to deal. The report is a mathematical document, and as a pedagogical document, it is painfully suggestive of that justly famous treatise upon "The Snakes of Ireland," the preface of which contained the incidental observation that there are no snakes in Ireland.

The Report, in basing arithmetic instruction upon a foundation of number and quantity, certainly makes a very grave assumption. Arithmetic may be merely the science of number in the adult mathematician's brain. To assume from this definition that it is such in the child's mind is quite another matter. It will be later the attempt of this paper to show that arithmetic, as the term is used to designate a certain class of instruction in the elementary schools, has indeed very little to do with quantity, and that quality and language are the real difficulties with which the child has to contend.

The weakness for basing the treatment upon hard and fast definitions seems to be the general tripping stone of the Report. In a similar way algebra and geometry are defined in the fixed terms of mathematics, and the treatment thereby lifted from the field of discussion. To infer from remarks which leak out in the reported debate, it would appear that

the authority of dictionary definitions has been relied upon for many of the essential conceptions of the report. Dictionaries cannot be relied upon for their face value in handling matters of development. No dictionary of children's conceptions has yet been compiled. We must be permitted to use terms of adult use flexibly, otherwise disputes will arise as unprofitable and as fatiguing as those which have attempted by definitions to determine whether a child reasons or an oyster thinks.

If there were any possibility of misconception of the pedagogical notions which underlie the Report, the following description of the process by which the child thinks five-sixths, dispels it. "In thinking five-sixths, he [the child] first thinks five and then six, and holding these two in mind thinks the result of the first as modified by the second." In a developed brain this is a possible way, but it is more than likely that if the manner suggested be actually tried with a child the result would be his apprehension of the figure "5," the figure "6" underneath, and a line between them; simply this and nothing more. The child lives in a world of sense, and this is the way his immediate senses would present it. To offer such a conception as a natural one to the child's mind is as reasonable as to expect to discover a discussion of the spiritual destiny of man in the seminal germs of protozoans.

I mean no disrespect to the veteran in educational progress who has presented this report. But it is certainly unfortunate that he has offered, under the sanction of his intelligence, a merely mathematical treatise which the educational world will naturally regard as pedagogical. It is especially unfortunate owing to the pressing need of a report by some authoritative body upon mathematics in the elementary school. The world has changed in its content, but the instruction in arithmetic has thus far received little pedagogical attention. Its ills are those of an old form in a new world. The considerations which have made it what it is have been quite foreign and external to the child. The form of instruction has been mapped out in plan and method by traditional adult conceptions, generated from the specialized brain of the closet mathematician, unshaped and unmodified by any pedagogical conceptions whatever.

That which a child should be taught in school is a ratio between what he will naturally learn, as determined by internal conditions of his development, and what it is profitable to teach

him, determined by demands of his world of environment. There is work for a committee to determine the terms of this ratio in the matter of arithmetic, for the subject is evidently in a state of confusion, lacking clear theory, facts, definite system, and acknowledged ends.

Let us take a rough superficial survey of the matter, using as data the common and current texts and methods of instruction. Let us see if the report has really touched any of the issues where difficulty is superficially manifest. Let us see if quantity is really the problem with which pupils so vainly struggle for eight or nine years.

In the first place, the traditional grading of arithmetic instruction is not upon a basis of quantity. First come the fundamental operations, which indeed deal with counting and are soon mastered in some fashion; then we deal with wholes, and next with parts of wholes. The difference between a whole and a part, as it appeals to a child, is certainly qualitative, not quantitative. He will count halves of apples as readily as whole apples, provided he can see or imagine the halves clearly. The chief difficulty in the schoolroom, as will be later pointed out, is neither with quantity nor quality, but with confusing symbols of arithmetical language; and this is an affair of language, after he obtains clear mental pictures of parts. There is certainly nothing new introduced, as a matter of quantity, when we pass from adding three apples and five apples, to adding three-sixths of an apple and five-sixths of an apple, provided the child is made as familiar with the qualities of the sixths as he is with the wholes. Then we pass to denominate numbers, dealing with feet and inches, quarts and gallons, hours and days, etc. It is true that inches bear a certain quantitative relation to inches, but there is no ground in experience for the assertion that this is where the difficulty comes in. Nothing new quantitatively has been introduced. He has already dealt with problems about three rabbits and four rabbits in each pen. Has there been a new quantitative conception introduced, in changing the word "rabbits" to "quarts," and "pens" to "gallons," when we ask how many quarts there are in three gallons if there are four quarts in one gallon? The change is in quality and in language. The child must learn the qualities of a pint, gallon, inch, etc.; he must build up a mental picture of these objects in their qualitative relations, associate with them names of language which will call up these mental pictures, and then, as we all

know from schoolroom experience, the problem is solved. In percentage and phases of business operations, again, no new ideas of quantity appear; three hundredths of a certain sum of money and five hundredths of it make eight hundredths, provided the child gets a clear qualitative image in his mind of the sum of money and its divisions; just as surely as three rabbits and five rabbits are eight rabbits, once he can picture the rabbits. This subject is difficult to him, for it is an entirely new world of quality to him, and it is difficult for him to form images; so it is with astronomy, for the same reason exactly. Quantity is no more an obstacle here than it is in acquiring a conception of the slopes of the Amazon valley in order to determine in which way the water flows. Passing now to mensuration, which has become incorporated in the term arithmetic, the difficulty is in associating relations of space. To find the surface area of a cylinder offers no difficulties, once it occurs to the child to lay out the surface as a rectangular plane. There are no new quantitative relations to be learned whatever; the difficulties are mainly those of quality in the matter of shape, and disappear when mental images in apperceptive relation are formed.

In short, before a child can become expert in exercises which go under the head of arithmetic in the school, he must—at least in mental imagery—learn to saw wood, dig ditches, whittle with a knife, weigh with scales, and do a general banking business. His main difficulty is with the qualitative considerations pertaining to the technique of these special occupations, and the accompanying language study in learning terms of quality. It is no wonder that it takes him a long time, for an adult generally spends his lifetime in mastering one of the occupations. Quantity is a matter which holds an infinitesimal place in the exercise which we call arithmetic in the actual school. It might be unkind to remark, in passing, that this view of the matter is favorable to the existing tendency away from the ancient dogma of formal discipline.

The field of real difficulty with arithmetic, as it is in the school, is in the preparation and arrangement of various qualitative elements so that they can be counted. Are there not grounds for question if quantity has any place in the elementary school whatever?

But our friends of the number closet may maintain that this work is not arithmetic, and may draw dictionary upon us

in proof. But the fact stands that this mixture of qualitative work and language in their relation to numbered objects is what the school calls arithmetic, whether we choose to term it arithmetic or Choctaw.

Or do they who so loftily ignore all but quantity in arithmetic do so upon principle, maintaining that we are commencing at the wrong end of the matter when we deal with quality first? Do they maintain that the subject should be taken up from a conception of an abstract unit as a basis, and from this quantitative abstraction developed first a science of pure number, which we might thereupon turn about and apply to objects in their various qualitative relations? This is certainly a very taking suggestion and seductive theory. It has the exactness, system, and beauty of a mathematical conception. Moreover, this view is already deeply imbedded in our existing system, but in such an unsystematic manner that, even if it were admitted to be the right method, there is necessity of reconstruction. Many of the texts do indeed commence with the definition, "Number is a unit or collection of units." Manifestly there are two theories of procedure in the field, and it is nothing but reasonable to suppose that in an unsystematic, haphazard conflict in the minds of teachers, in texts, and methods of instruction both child and subject are sufferers. Shall we start with quality and deal with numbered objects, or shall we start with abstract number? There are two horses in one pasture and three in another; how many altogether? Shall we teach the child to drive the horses together, either in reality or in imagination; *see* that there are five horses; and then go about teaching him the arithmetical language to express this operation? That is one way and in one world. Or should we do the business in an entirely different world; commencing *ab novo* with the conception of an abstract unit, proceed by the *a priori* laws of thought, learn that two units and three units are five units—horses or no horses—and then apply these abstract units to the sensuous concrete, after having demonstrated the philosophical theorem of the universal validity of transcendental principles, etc.? This much is certainly manifest: there are, running out from every problem, two sets of reasoning processes, one into the objective world where quality is predominant, and one into the abstract world of pure number science where quality is not. And these two lines of reasoning run parallel throughout all

arithmetic, the one ever duplicating the other at every point—to the delight and dispute of philosophers from Hume through Kant to Hegel and Herbart.

Let the philosophers fight it out upon whatever adult grounds they will. But what are we going to do about it in the matter of arithmetic in our elementary schools? What shall we do about it in the minds of children from five to fourteen years of age? Shall we train our children to hunt in the field of qualitative objects or in the world of abstract relations of still more abstract units? In which field *can* we train them? In which field *must* we train them?

The Report declares that common fractions should be presented before decimals. It is easy to see, from the adult standpoint of mathematics which is in the author's mind, his reason for this. The symbols are something more than mere language symbols of relations in the objective world, and bear in themselves a certain rational relation, mathematically. But it has not been decided as yet that this is even a possible condition of the child's mind. If we look upon arithmetical symbols as an expression in language of operations in the world of sense—as, in the absence of evidence to the contrary, we may assert the child must regard it—it is clearly a matter of indifference, whether we present common or decimal forms. Both are merely language forms. Five tenths of a dollar being placed before a child, he *sees* them, and it is now of no material importance whether we teach him the symbols of decimal or of common fractions.

Still, the mathematicians may be right, even pedogogically. It is a question upon which all of us will hold different views until the matter is thoroughly and intelligently sifted. I would simply point out the source and cause of many of the difficulties in arithmetic. A step toward systematic establishment of order would be the determination of the following:

1. Is it possible for children, five to fourteen years of age, to use intelligently the symbols of abstractions in the world of pure number science?

2. Is it possible to deal with arithmetic symbols in the elementary school merely referring to objective relations, and thereby accomplish all utilitarian ends?

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VII

REVIEWS

Systematic science teaching: a manual of inductive elementary work for all instructors—By EDWARD GARDINER HOWE. (In *International Education Series.*) New York; D. Appleton & Co., 1894. 326 p. $1.50.

This book includes all work in elementary science under four heads, viz.: (1) The stars and earth; (2) The mineral kingdom; (3) plants; (4) animals. These divisions indicate four parallel lines of work extending through a period of nine years. Each year's work represents a transverse section of all the lines, and the whole is presented in a succession of "steps," forty-nine in all, though only twenty-three of these are detailed in the book.

Mr. Howe is a successful teacher of long and practical experience in dealing with nature subjects with children, and in this book, which has grown up with that experience and out of it, teachers may be assured that they will find a great deal of much needed help. It has not yet dawned upon the minds of many, as it has upon the author, that a book entering this particular field must be planned along different lines from those followed by books designed to assist both teacher and pupils in more advanced stages, and after specialization has begun. It must recognize the fact that the child's experience, while varied, contains but few details. It presents itself to the child as a whole, and it is the function of instruction to guide the pupil in the analysis of that experience into related parts, as well as to enlarge it. Mr. Howe understands this as a teacher; as an author, he fails somewhat to give the point due weight.

The book may be fairly judged by testing it in the light of the principles which underlie the following points:

1. Selection of subject-matter.
2. Methods of presentation to the pupil.
3. Plan, involving
   (*a*) Relations of parts of subject-matter to each other.
   (*b*) Relation of thought-work to expression.
4. Moral bearings.

In the division relating to animal life, about one-half the book, the material selected is abundant and well chosen. The notes given on animal habits and structure, and the hints as to the essential points for study, are generally excellent. Under plant life, the gross structure and something of the habits of common plants are treated. About one-fourth of the book is devoted to minerals and the stars and earth. There are two sets of phenomena, however, of vast importance and of great interest to the child, those involving physical and chemical change, which receive but little attention, considering the scope of life-study outlined in the book. The study of soils, too, through which the great function of the mineral appears, is hardly touched.

In the author's detailed model lessons some excellent hints are given. There is throughout, however, rather too strong a tendency to emphasize form independent of function, and too much stress is placed upon classification. The point is illustrated by the lesson on "Seeds and fruits," Step I. The object is stated as (1) To see and handle wisely selected botanical material; (2) To exercise the senses, to give ideas of weight, etc., and to introduce color. In looking into the lesson through the method employed, that of merely sorting the seeds, the real botanical reason for the use of seeds seems to be to get the pupil to reach a classification based upon *form*. This being true, the lesson fails to have much significance to very young pupils, for whom it is intended, from the standpoint of botany. From the complicated mechanics of the lesson, it would seem that the author, perhaps, has most prominently in mind the training of the senses. *If* this is so, then, since the pupils are required to handle the seeds as *functionless* things, it follows that any other set of small objects would answer the same purpose, and thus again the aim of the lesson from the standpoint of botany is obscured. As though recognizing that the pupils will not see enough in the *botany* of the lesson, the author devises sundry games and offers certain rewards in order to keep them at work to the end. Judged by the mode of presentation, the conception which seems to underlie the plan of the book is that a child's mental activities develop in a serial order, rather than contemporaneously; and, that material of one kind must be employed at a given period to awaken one set of activities, and different material at a later time for another set. He speaks of the seeing of childhood; of the deduc-

tions of youth; the generalizations of maturer years. This conception of an epochal development of the mind is at the bottom of more bad science teaching than any other. Mental activities are not detachable from one another. Observation, as an educative process, cannot exist without appropriate deductions and the immediate formulation of a hypothesis. The teacher who continually preaches to his pupils, "Don't generalize," "Don't draw conclusions," "Make no hypothesis," is placing himself squarely against the mind's natural movement. The only point upon which pupils need to be warned is that the hypothesis must be held subject to instant modification in the light of new and further investigation. The author insists that in the earlier stages there be "no comparing, no generalizing." Utterly impossible! We know things only through their relations and these can be determined only by comparing. Although he wars against generalizing, yet in the very first year's work he selects certain animals because they are *typical* of large classes; in the second year he directs the presentation of *typical* leaves. But a typical form, a figment of mind, really, is but a *generalized* form; and by the continued and artful selection of these forms the teacher deprives the pupil of the chance to reach a true generalization by the correct process, which requires the examination of the greatest number possible of individuals.

The general tone of the model lessons is much impaired by that ultra-simplicity in questioning which has done a great deal to discredit elementary science work with both pupils and teachers. There is certainly scant reason for loading the book with such queries as these about a boy: "How many legs?" "How many arms?" "Has he a thumb?" "Has he a tongue?" The last two are particularly atrocious in every way. "Can boys hear?" "What with?" "How many ears?" "Can he see?" Similar ones might be cited in other lessons. In teaching how rain is produced, the use of the sponge in illustration is decidedly unfortunate. The air bears no such functional relation to the atmospheric vapor as the sponge does to the water it holds; nor is rain produced by the squeezing process which forces the water from the sponge.

By planning the work in a number of successive "steps" the book adopts the old *linear* method of treatment which practically precludes the possibility of psychological arrangement. The principle at stake, which is violated none the less because

the line of advance is conceived to be "spiral" instead of straight, is that the child naturally sees wholes first. He does not see, as Mr. Howe has arranged the steps, the seeds of a plant when studied the first year, and the roots and stems the second; nor does he defer his observation of the flower until the seventeenth step in the third year. The seeds and other parts of the plant will possess significance for the pupil only when he sees the plant as a whole at that time. The significance of the different parts will constantly change, too, with the varying season. In autumn, they stand as an effect, each as a partial product of what the plant has done; in spring, they present themselves as a cause, each a factor in what the plant can do.

The four lines of work seem to be arranged without much regard for their organic relations. This is illustrated in the first year, where the topics "General aspects of the skies," "Sorting of metals," "Sorting of seeds, buds," and "Eight home animals," show but little connection.

The subject of expression does not receive that attention which its importance in nature-study demands. The chapter which attempts to develop the ideas of form and color in the child's mind without the use of the materials afforded by the science work is a decided anomaly. The author here seems to abandon in despair the suggestions offered in this direction in his chart at the beginning of the book.

In discussing the motive Mr. Howe well says that the great object is to have the children feel the "sweet influences which flow from communion with birds and flowers." His anxiety, however, to extract moral influences leads him to strain a point. For example, one of his motives for choosing certain animals is that they possess "desirable traits." In illustration, he says, in teaching about the spider he would emphasize her industry, but would ignore her bloodthirstiness. That is, he would have his pupils observe, admire, and applaud her dexterity in building her web, but would not allow them to be "in at the death," which is the inevitable and natural result of her industry. He says he would choose the harmless kangaroo rather than the tricky opossum. As an attempt to smuggle into nature-study a bit of morality, this artifice probably discounts anything the hoary old opossum ever dreamed of. Indeed, the anthropocentric idea is so strong in the author's mind, he betrays such anxiety to show that all creation is in accord with the notion of a beneficent design—beneficent from

the standpoint of selfish man—that it warps his presentation in more than one instance. In one place the relation of the fly to the spider is slurred over; in another the relation of the cow to man is detailed at some length. He shows how the cow "serves" (?) man during her life by bearing his burdens; she then very accommodatingly submits to death that she may yield up every ounce of her corporeal substance to further satisfy some real or supposed want of her master—man. It would probably be instructive for both the spider and man if they could overhear the fly and the cow comparing notes. If nature-study can offer no broader claims to moral training, and if those claims do not rest upon deeper foundations than such as have been presented as leading ones in Mr. Howe's book, then the case is hopelessly lost. Genuine morality is not a matter of imitation.

The many valuable suggestions, however, which the author makes respecting material, its care and preparation, will at once commend the book to teachers, and time will see it occupy a useful place in every teacher's working library.

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Philosophy of Mind: An essay in the metaphysics of psychology—By GEORGE TRUMBULL LADD, Professor of Philosophy in Yale University. New York: Charles Scribner's Sons, 1895. 414 p. $3.00.

It has recently been said by a distinguished American educator that this age in thought is as distinctly colored by psychological inquiry as the last generation was by evolutionary discussions. The kernel of truth in this somewhat exaggerated opinion has been fully appreciated by the author of the work before us, who published his *Physiological Psychology* in 1887, and his *Psychology, Descriptive and Explanatory*, early in 1894, and who now completes his psychological theory by a treatise on the metaphysics of mind. This third volume takes up for consideration "certain problems, suggested, but not usually discussed, in the course of a thorough empirical study of mental phenomena." These may be roughly classified under three heads: first the relation of psychology to philosophy and the place of metaphysics in psychological investigation; second, the existence and nature of mind; third, the relation of mind and body, and the several philosophical theories based on different views of this relation. Under the first head, a

sharp attack is made on the many who, nowadays, attempt to construct their psychology entirely apart from metaphysical assumptions. This attack is conducted not only by way of theoretical contention, but also by means of examples drawn from the procedure of noted writers; and the conclusion is reached that each psychologist should either premise the metaphysics of common life, or else frankly adopt some definitive metaphysical system as the basis of his inquiries. The second main subject is treated in Chapters iii–vi, which are successively entitled: "The concept of mind," "The reality of mind," "The consciousness of identity, and so-called double consciousness," "The unity of mind." The argument for the existence and reality of mind is based for the most part on the direct testimony of inner experience, immediate self-consciousness guaranteeing mind in the present, recognitive memory revealing it in the past, and inference pointing to its permanency, though in a restricted sense. The identity and unity of the self are likewise the identity and unity made known by conscious life. For mind is not to be conceived in the old ontological way, as an occult and unchanging "core" of reality, which somehow stands "back of," or "under" its conscious states, but as a developing being that grows into unity through its own progressive life. Identity, in fact, can be predicated of a being only when "its self-activity manifests itself, in all its different relations to other things, as conforming to an immanent idea," and unity but implies "the presence of some ideal in the very being of the thing" itself. In the discussion of his third important topic, Professor Ladd returns to the polemic attitude with which his work began. Materialism is rejected as being practically out of court; monistic spiritualism is considered more defensible, yet not satisfactory—monism of the "double-faced unity" type is held, in favor of a moderate dualism, to exaggerate the parallelism of psychical and physical phenomena which modern research discovers, and to draw illegitimate metaphysical conclusions from any the most extreme view of the facts.

As a whole, the work is a timely and important addition to psychological literature. It is plain that psychology, of all sciences, can least hope to avoid the task of interpreting its results in terms of metaphysical conclusions; and Professor Ladd deserves high praise for his courage in

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attacking the problems which recent discoveries have brought into the foreground, as well as for his skill in solving them. The reader will, no doubt, find many points of disagreement: the close adherence to empirical results, though meritorious in the main, sometimes makes the author's conclusions seem merely scientific psychology rebaptized; the decided character of Professor Ladd's philosophy will repel followers of other systems. But, even if the work is not the last word on the subject, it is certainly a welcome and a valuable essay, as the sub-title modestly describes it.

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The Latin language. An historical account of Latin sounds, stems, and flexions.—By W. M. LINDSAY, M. A., Fellow of Jesus College, Oxford, Oxford: at the Clarendon Press; New York, Macmillan & Co., 1894, 8vo. 660 p. Price $5.00.

English scholars have of late years shown increasing hospitality to the best German work, and when a man of Lindsay's ability has compressed into one volume the result of learned investigation in Latin philology since Corssen's time, and has added thereto his own not inconsiderable contributions, one hastens to acknowledge the debt of gratitude. The book is well arranged, clear, succinct; a real treasure house of facts and theories concerning Latin philology.

Corssen called his great work *Ueber Aussprache, Vokalismus, und Betonung der lateinische Sprache*, and Lindsay's book might bear a similar title; certainly its main title, the Latin language, is somewhat vague, inasmuch as Syntax is not treated at all. There are ten chapters divided as follows: 1. The Alphabet, 12 pp., with copious extracts from the original sources of our knowledge, such as the remarks of the grammarians, and quotations of inscriptions; 2. Pronunciation, 132 pp. (based on Seelmann, *Aussprache des Lateins*). The remarks in this chapter on hidden quantities are especially valuable. Chapter 3, on Accentuation, has 68 pages; Chapter 4, on Latin Representations of the Indo-European sounds, 96 pages. It is well that Lindsay constantly retains the expression Indo-European instead of Indo-Germanic. Chapter 5 discusses the formation of noun and adjective stems in 49 pp.; 6, considers declension, comparison, and numerals, 55 p.; 7,

pronouns, 32 pp.; 8, verbs, 95 pp.; 9, adverbs and prepositions, 48 pp.; and 10, conjunctions and interjections covering 21 pages. The treatment is thorough, the method being a statement of the particular problem under consideration, then follow the authorities, both ancient and modern, and detailed reference to the sources, and all from the standpoint of modern comparative philology. It is gratifying to find American work referred to occasionally. For students this book will take the place, to some extent, of Stolz's contributions to Mueller's *Handbuch;* and, indeed, so rapid is the progress of Latin philology that Lindsay's book will be soon supplanted by the great *Historische Grammatik der Lateinische Sprache*, now being published in Leipzig, and of which the first part, *Einleitung und Lautlehre*, by Stolz, appeared while Lindsay's work was in press. We could almost wish that the latter might be kept in type and issued with corrections and additions, twice a year as a periodical, thus placing in convenient form the latest discoveries in Latin philology; at least we may hope that new editions may appear from time to time.

Naturally in such a book we cannot agree with all that is said; where the subject is so wide and where so many problems are confessedly unsettled, one finds one's self at times opposing the author's conclusions; but it is not one of the least merits of the book that the evidence is all before one, and the margins are wide for the inevitable penciling. Misprints are wonderfully rare, considering the various alphabets and characters used. Occasionally there is a little slip, as on p. 178, where the statement is made that "in the classical period compounds with *indo* are only found as archaisms in poets, *e. g.*, *indŭpĕrātor*, Juv.," whereas on p. 583 we are bidden to compare classical *indigeo*, *indigĕna*, *indŏles*, etc. The index is not as full as it should be; the book is above all a reference book, and the index should be a complete key; the Dvenos inscription, for example, is cited a dozen times, perhaps, yet it has but one reference in the index. An index of authors and passages discussed would greatly increase the value of the book. The dialectic forms are also inadequately indexed. The characters used to express the various modifications of sounds might well be explained in some table; to be sure, on p. xxviii, the statement is made that Brugmann's system of transliteration is followed, and on pp. 285 and 290 there is a little explanation; but, as many persons who will use this book are not likely

to have Brugmann at hand, a detailed statement would increase the value of the work, which is indispensable for Latin scholars.

W. A. MERRILL

UNIVERSITY OF CALIFORNIA

A Greek grammar for schools, based on the principles and requirements of the Grammatical Society—By E. A. SONNENSCHEIN, M. A. Oxon., Professor of Greek and Latin in the Mason College, Birmingham. (Parallel Grammar Series.) Part I, 1892—Accidence; Part II, 1894—Syntax. London: Swan, Sonnenschein & Co.; New York: Macmillan & Co., 152, 153 p. $1.25.

Professor Sonnenschein's Greek Grammar, just completed by the issue of the syntactical portion, is a valuable addition to the pedagogical material of the English-speaking teacher of Greek. The Accidence, which has been some two years before the public, has received the warm commendation of several distinguished Hellenists. It is the Syntax that now demands special attention. In this the author continues the application of the method—a method that cannot be too highly commended—of placing the corresponding, or contrasted, Latin construction side by side with the Greek. Besides this general feature we may note the following: The Syntax is divided into two parts: I. Sentence Construction, in which "those constructions which are peculiar to the complex sentence" are "treated *after* those which are common to the Simple and the Complex Sentence;" II. Meaning of Forms. The practical and the theoretical are thus at once separated and juxtaposed. In Appendix II. (Notes and Authorities on Syntax, pp. 335–344) we find several mooted points instructively, if not always convincingly, discussed. If, now, we examine the Syntax in greater detail we cannot fail to be struck with its *practical* character. The author has constantly in mind not merely the student that wants to read Greek authors by what Harry East called the "light of nature," but also the student that wants (or, perchance, is wholesomely required) to try his own hand at writing Greek. The latter kind of student is too often lost sight of on this side the water. The syntax of the noun is noticeable for the separation (in Syntax Part II), of the meanings of the genitive and dative proper from the inherited meanings of these cases, albeit this separation can never be carried through satisfactorily in detail, and one may easily dissent from some of Mr. Sonnenschein's views here. Still the separa-

tion is worth making, so far as it is possible. But it is to the syntax of the verb that we naturally look for new features. Here we find what we should expect from so modern a teacher as Mr. Sonnenschein—although we meet with disappointments too. The "conditional" subjunctive in clauses that are not formally conditional gives way to the "prospective" subjunctive. This certainly brings such subjunctives more nearly within the grasp of the average student and seems to put the case in a truer (I do not say true) light. But the treatment of the conditional sentence is painfully lacking in the simplicity and lucidity that mark Professor Gildersleeve's treatment (*Am. Journ. Philol.*, III., pp. 434 *sqq.*). But then Mr. Sonnenschein derives the *εἰ* wish, from the *εἰ*, protasis. The treatment of the direct and indirect exclamation as distinct from the interrogation is commendable. So too the full discussion of *oratio obliqua*, which might well have been made still fuller. The forms of "indirect speech" certainly demand and deserve far more attention than the long-suffering conditional. In conclusion I would call attention to some minor matters that require correction. Aristophanes' *ἠμι* is forgotten at p. 96; the "root *ΠΕΙΘ*" appears on p. 169; the optative gets more than its due in the "final" clause. An explanation of the reason why the predicate-noun is distinguished by the absence of the article, and why it is the perfect passive that takes the "dative of agency," might serve a useful purpose. Though much of Professor Sonnenschein's syntax can be regarded only as provisional, he has given us a book that cannot fail to be of great value to teacher and student alike.

MORTIMER LAMSON EARLE

BARNARD COLLEGE

Mediæval Europe, 800 to 1300 A. D.—By EPHRIAM EMERTON, Professor of History in Harvard University. Boston: Ginn & Co., 1894. 607 p. $1.65.

This book enters upon its career with two very decided advantages over the usual brief history of the Middle Ages. The first lies in the fact that the author has himself prepared the way by an admirable *Introduction* to the same period; and, secondly, he has cut the chronological limits of the work to suit his own views, not according to the traditional pattern.

It is no small matter to clear away the brushwood in the early part of mediæval history, or to trace, with any sort of

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regard for the later science, the obscure transitions from things Roman to things Frankish. But, that having been done, and the fact having been assumed that the reader is reasonably familiar with the last pitches of the decline and fall and the first ascents of feudalism and Germanic law, it is much easier to present a view of the history and the institutions which are typically mediæval. Beginning his study at 814, Professor Emerton further lightens the task of the reader by closing it at 1300. He is judicious in choosing those boundaries in attempting to give a picture of the psychological movements and institutional phenomena which are alike distinct from the ancient and the modern. We are left a little in doubt as to a general term for the two or three generations next succeeding, for, although "Renaissance" is a long word, it would seem a little cruel to stretch it over the whole of the fourteenth century. Yet, as to the Middle Ages, Professor Emerton, with his disclaimer against hard and fast chronological limits, has done well to pause at this point.

In the scheme of treatment the political history is given in advance of the institutional. Divided into periods by some ten chapters, the rise of the German Roman empire, the restoration of the Papacy, the conflict over Investiture, and the struggle for Italy are traced to the advent of Charles of Anjou. The Crusades are examined all together as a single group of phenomena. The growth of French absolutism, the intellectual life, the typical feudal institutions, the laboring classes, and the ecclesiastical system are given each a chapter. A large amount of bibliography is scattered through the book, but it is a little difficult to determine for what class of readers it was intended. Although many discriminating remarks on authorities are made, many more would have to be added to give the references their most efficient use.

The book, as a whole, partakes of the interest and lucidity of its predecessor, the *Introduction*. The air is clear, the view distinct, so that difficult things under the author's treatment become natural and easy. Judicious management of detail is doubtless the key to this success, and the author and the reader are both to be congratulated that the events of five hundred years have been so well kept in hand.

J. M. VINCENT

JOHNS HOPKINS UNIVERSITY

Five Lectures on Shakespeare—By BERNHARD TEN BRINK. Translated by Julia Franklin. New York: Henry Holt & Co., 1895. 248 p. $1.25.

Professor ten Brink of the University of Strasburg, who died some three years ago, was, at the time of his death, recognized as the foremost scholar in the world in his department of learning, which was that of English philology. His *History of English literature*, uncompleted though it was, is nevertheless the standard work for the centuries covered. This pre-eminence of a German scholar in the field of English philology is not at all strange nor unaccountable to those who understand the conditions which have hitherto prevailed in German and in English university life, conditions which are at the present hour undergoing modifications to the great advantage of scholarship in English literature at the great English university of Oxford.

Professor ten Brink's pre-eminence in English philology was universally acknowledged. Shortly after his death I heard a German university professor, in a university lecture, characterize ten Brink's *Chaucer* as a "*Musterstück*," a piece of scientific work in the field of literature worthy of being held up as a model to young scholars. What a loss it was then to the world of learning that this most learned of all histories of English literature was broken off by the death of the author just at the threshold of the greatest period in English literature—the age of Elizabeth, the age of Shakespeare.

Shakespeare was ten Brink's favorite poet. He himself said that it was Shakespeare's inexhaustible spirit that had enticed him to devote his life to the study of English philology. But, though thus always a lover and a student of Shakespeare, ten Brink did not live to give to his favorite poet that detailed and minute study which he gave to Chaucer and to the earlier literature of England. We have in these five lectures, therefore, not the exhaustive scientific work which ten Brink would have produced on Shakespeare had he lived ten years longer, not such a work as his book on Chaucer—indeed, not a book for Shakespeare specialists at all, perhaps, but doubtless for this very reason a book better suited to the average reader and lover of Shakespeare's plays. These are five lectures given at Frankfurt in the new Exchange in February and March, 1888. And, being popular lectures and not scientific work for Shakespeare specialists, they are of necessity, to a large extent, expressions of personal opinion; the opinion,

however, of a man whose life-long custom was to find a scientific basis for his opinion, the opinion of a distinguished scholar whose mere opinion carries weight.

The subjects of the lectures are: "The poet and the man," "The chronology of Shakespeare's works," "Shakespeare as dramatist," "Shakespeare as comic poet," "Shakespeare as tragic writer." In "The poet and the man" ten Brink enlarges upon the influence of Shakespeare's early life in the country in giving him "a universal sympathy for all created things" and in guarding him from "developing one side of his talents at the expense of others." Having dwelt upon the importance of a "healthy organization" (thus minimizing the importance of a lack of knowledge obtained in the schools), and having shown the value to "the greatest dramatist of all times" of that intimate knowledge of the stage which made possible that "combination of deep and imperishable matter with the most intense immediate effect," which "stamps the works of Shakespeare as unique," he disposes easily of the Bacon contention as "a mere curiosity, a morbid phenomenon of the time," and sets before himself the task of discovering "the spiritual unity" in the creations of the poet by considering each one of these, not as an isolated work of art, but as a revelation of the man who created it. How important, then, is a knowledge of the chronology of the plays, for how can the works of the poet be seen as "a great organism," as a revelation of the "spiritual unity" between the man and his work, if we do not know the order in which these works were produced? This is, perhaps, the fundamental thought of the book—to give an insight into "the development of a definite intellectual personality," so that we shall be able to distinguish and to judge accordingly the immature early dramas with their "disproportion between the plot and the *dénouement*" from those works of his maturity in which this "greatest of tragic writers" reveals his "incomparable tragic power."

In this attempt to obtain an insight into the "definite intellectual personality," which produced these dramas, ten Brink considers the prevailing characteristic of each chronological group of plays, and endeavors to infer therefrom Shakespeare's point of view at this period of his life, as for example the new period in Shakespeare's development which began in the year 1601. The preceding plays were radiant, romantic comedies. We now step from the "sunlit landscape" of an

Arcadian world into "the bleak mountain region" of the great tragedies, a region of mist and gloom. How shall we account for this complete change in Shakespeare's mood? Professor ten Brink suggests the possibility of the influence of the conspiracy and rebellion of Shakespeare's friend, the Earl of Essex, in 1601, and the subsequent death of Essex and his followers upon the scaffold. The play of *Julius Cæsar*, in which we have the conspiracy and death of the noble Brutus, was written, probably, in 1601, or shortly after; and this was followed by *Hamlet*, *Othello*, *Lear*, *Macbeth*, those "grandest creations of the tragic muse in all literature." But in 1608 "a reaction takes place in the poet's mind," and we have the last utterances of his poetic genius written in an entirely different mood. Professor ten Brink hints at a possible cause for this change of mood, and thereby brings the reader into more intimate relations with that "definite intellectual personality," whose creations are thus seen to be "a great organism," a revelation of the spiritual life of this "greatest dramatist of all times."

No less suggestive is the little volume throughout. The author asks what the German stage would be without Shakespeare, and suggests the influence of the stage upon culture. He compares the treatment of the Romeo and Juliet story by Brooke and by Shakespeare. In Brooke's poem the separation occurs three months after the marriage, in Shakespeare within a few hours. This slight deviation in regard to time, ten Brink asserts, adds infinite pathos to the fate of these "two glorious creatures," made for each other, and yet "upon this brief day follows at once the eternal parting. This is poetry, this is tragedy."

There is much of interest in the discussion of Shakespeare as a comic poet. Ten Brink holds that in the dramas of the earliest and of the latest period Shakespeare, "to some degree, violates our sense of poetic justice," touching in this connection upon the fate of Shylock.

In the closing lecture we have some discussion of the nature of the tragic error which results inevitably in tragedy, in regard to which there arises much confusion of thought from a confounding of morals and æsthetics. The tragic error is not always a moral error, and even when it is a moral error it is "more divine to pity Othello or Macbeth for his deeds than to condemn him." And yet Shakespeare "appeals to our

conscience," he "strengthens our faith in virtue," he "makes us feel how the good" is in itself "a thing most real," and that "it is infinite love which pervades and animates the universe."

This little volume is throughout stimulating and suggestive. It is designed to bring the poet closer to the understanding, but above all to the heart of the reader. And the pleasure of the reader of this loving tribute to our great poet is heightened by the knowledge that it is the tribute of a great scholar, whose habit of mind was scientific to the last degree, and whose appreciation was therefore based, not upon sentiment alone, but upon sentiment subdued and instructed by science, the science of language and of literature.

RICHARD JONES

SWARTHMORE COLLEGE

Lyly's Endymion—Edited by GEORGE P. BAKER, Instructor in English at Harvard University. New York: Henry Holt & Co., 1894. 109 p.

The history of the English paragraph—By EDWIN HERBERT LEWIS. The University of Chicago Press, 1894. 200 p. $1.00.

An introduction to English literature—By HENRY S. PANCOAST, Instructor in English in the DeLancey School, Philadelphia. New York: Henry Holt & Co., 1894. 473 p.

Specimens of exposition—Edited by HAMMOND LAMONT, Instructor in English, Harvard University. New York; Henry Holt & Co., 1894. 180 p.

It is a great temptation to speak of Mr. Baker's book and Mr. Lewis's thesis in detail, for both are, in a great measure, works of original research, and have in them much that is novel and suggestive. But in the crowded pages of the EDUCATIONAL REVIEW it is an absolute duty to confine one's self strictly to the point of view of the teacher rather than to allow one's self the license of appealing to the special scholar. To the teacher of English who follows closely the literature of his profession both books will be of interest and value. Mr. Baker's preface, at first sight disproportionately long for the single play which accompanies it, proves to be a remarkably sound and detailed estimation of the often contradictory facts known in regard to Lyly's life, an elaborate examination of his relations to the drama of his time, and a careful study of the political allegory of *Endymion*. The play itself is annotated with discretion and learning. Obviously too advanced in character for use in the secondary schools, Mr. Baker's

study is none the less to be highly recommended for students who are mature enough to profit by a monograph dealing with difficult problems in the history of English literature, and contributing directly to their solution. Mr. Lewis's thesis, presented at the University of Chicago in candidacy for the doctor's degree, is likewise not meat for babes, but it is distinctly interesting as carrying a step further the method of statistical analysis of rhetorical forms for which Professor Sherman has recently stood sponsor in his *Analytics of literature*. In general this method of research seems likely to yield interesting and, perhaps, valuable results, though at present it is doubtful whether some of the premises which the school lays down in investigation are fully justified, and whether the system is capable of accomplishing all that its advocates claim for it. Mr. Lewis's zeal and industry, however, cannot be doubted, and no student of rhetoric can read his thesis without finding in it a large amount of interesting and suggestive matter in regard to the history of the English paragraph from the time of Alfred to our own day—its chief forms of structure, and its relation to the words and sentences which compose it, all tabulated and averaged with astonishing minuteness.

Mr. Pancoast's book and that of Mr. Lamont are text-books pure and simple. The first is unquestionably the best text-book in the field on English literature. The style is sometimes turgid, the literary criticism is not always of a high order, the grasp of minute fact sometimes weak; but the proportions are good, the classification scientific, the matter interesting and pertinent, the bibliographies usually helpful. No other short work on the subject which I know is so compact, so likely to be stimulating to the pupil. Mr. Lamont's little book on exposition is a compilation, but an exceedingly useful one. Teachers of composition, especially in the schools, have been in the habit of laying great stress on narration and description, as if the writing of stories were the aim of one's existence. If any one kind of composition is broadly typical, it is certainly exposition; and Mr. Lamont has helped us greatly in collecting good specimens of all the distinctive species of it, and preparing them suitably for the use of pupils and teachers.

G. R. CARPENTER

COLUMBIA COLLEGE

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VIII

EDITORIAL

A strong and representative committee of twelve, appointed by the American Philological Association for the purpose, has issued an address, in which arguments are adduced to prove that college preparatory schools should reject the so-called classical programme recommended by the Committee of Ten on Secondary School Studies, because it provides for but two years of instruction in Greek. The philologists contend that three years is the minimum time that should be devoted to Greek in preparation for college work. There is doubtless something to be said on each side of this question, although so many pupils are now well prepared to enter college after but two years or less of Greek, that the committee of twelve would seem to be depending largely upon old and ineffective methods of teaching to fill out the time. But there can be no doubt whatever that the philologists have not considered carefully the problems that the Committee of Ten had to solve. In the first place, the Committee of Ten formulated courses four, and not five, years in length. Next, they were guided by the rule laid down by the language conferences, to the effect that two foreign languages should not be begun at the same time; and, as the Committee pointed out in their report (p. 48), "to obey this rule is to accept strict limitations in the construction of a four years' classical programme." Furthermore, inasmuch as the Committee of Ten were framing programmes for a national and democratic system of education, and not for an education of classes or sections, they naturally endeavored to postpone until as late a period as possible the grave choice between a classical and a Latin-scientific course. The reasons given by the committee for this are conclusive,[1] but the philologists seem not to have heard of them.

There are other respects in which the address of the philologists does not do full justice to the Committee of Ten. For

[1] See *Report*, pp. 45–47.

example, no evidence whatever is adduced in support of the statement that "nothing can be more obvious than the deliberate intention of the Committee of Ten to confine Greek to the last two years of preparation for college, and gradually to establish two years as the maximum of time which even the best schools will regularly give to the language." Far from being "obvious," it is safe to say that no single member of the Committee of Ten had any such intention as is here referred to. Nor do the philologists make any reference to the express statement of the Greek Conference (*Report of the Committee of Ten*, p. 77) that there are circumstances under which Greek should be pursued but two years in the preparatory school; nor to the further statement of the same conference, that the three years' time prescribed amounts to but two and a half years, anyhow. So there is nothing sacred in the number three, after all.

At first glance, then, it would appear that the philologists, eager to defend Greek, have failed to bear in mind the very practical aspects of the problem that confronted the Committee of Ten, and that, as is natural in a committee two-thirds of whose members are from Eastern colleges and academies, the needs of the public high schools have been largely overlooked by them. The educational position of Greek in America is shaky enough at best, and it can only hope to retain its influence by the aid of the best and most economical methods of teaching, as well as by broadmindedness on the part of its representatives, and by full recognition on their part of what the problems of secondary and higher education in this country involve.

In the very practical and courageous report on the schools of Omaha, that Dr. Marble wrote after his defeat for re-election as superintendent in that city, he says:

> The direction of a system of schools requires, on the part of teachers, due subordination and co-operation with the principal; it requires of the teachers and principals co-operation with the supervisors of departments and with the superintendent; it requires from all these subordination to the Board of Education and the rules it has laid down. With few exceptions—I might almost say with a single exception—these relations havs been cheerfully maintained, and any slight deviation that might occur can be easily corrected, if every member of the board will leave to the superintendent the exercise of that authority with which he is invested by your rules, and which, by universal custom, belongs to this office. But when a principal

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consorts with politicians on street corners and in secret conclaves, and presumes, and openly claims, by such outside influence to control a majority of the board; when a member of the board states in the presence of others that he desires this principal to think him to have acted differently than his judgment has dictated; when such a principal, with indifferent scholarship and with very moderate ability as a teacher, assumes to sit in judgment upon the superintendent, to misrepresent that officer to his *confrères*, and even openly to aspire to some higher position by means of a so-called "pull" upon this board—then self-respect, not to say the welfare of the schools, would seem to demand that you take notice of such conduct, however insignificant the person. It is notorious that this picture is true to life. I conceive it to be my duty to speak thus plainly, in order that it may not be my fault if you do not purge yourself of such an influence as he represents and seeks to exert.

This description of the political principal is true to life, and applies equally well to cities not so far from the Atlantic Ocean as Omaha. The principal, who is appointed for life by a local board of politicians and nondescripts—as in New York, for example—is virtually independent of the superintendent, and may, and often does, become the greatest obstacle to the progress of the school system. Dr. Marble has done a public service in calling attention anew to this genus.

The careful attention given by the Council at Denver to Professor C. A. McMurry, and the marked favor with which his proposals regarding the elementary course of study were received, have given a widespread interest and importance to the syllabus that he presented to the Council. It was entitled "Influence of Herbart's doctrine on the course of study in the common schools," and is as follows:

1. The purpose of this educational movement is to gather into the school course as much of the world's accumulated store of culture as is suited to exert educative influence upon growing children. It is the problem of collecting and arranging the best materials of culture which history, literature, and social and scientific progress have brought to light and stored up.

2. It seeks in our own American history and literature, as expressed in our mother English, the principal center and substance of culture for our common schools. It is not foreign nor exotic, but thoroughly domestic, Anglo-Saxon, American. It is not in search of foreign curiosities. Its geography begins at home and remains long within our own borders. Its natural science deals chiefly, almost entirely, with our native plants and animals and with those natural forces and phenomena with which every child may be made familiar in his own home and neighborhood. By the increased emphasis which it places upon the story of our early national life and historical development, by the more abundant use of the shorter

and longer masterpieces of our best American writers, it seeks for a fruitful entrance into the hearts of children or the strong and wholesome influence of our best American culture. It is, therefore, national and patriotic in the true sense.

3. Secondary and supplemental to these American materials are the choicest products of English and European history and literature. The history and literature of America, surprisingly rich as it is, is not complete enough to give the children the full rounded measure of culture which the experience of the world has gathered for the educative enrichment of children. We are compelled to draw upon Europe for some of the best thought materials with which to fill out the course of instruction for the young.

4. It is very evident that our course of study is deeply rooted in the past, that culture and civilization are a product not to be manufactured to order, but a growth and registration in historical and literary forms of racial experience and progress. The reason why we harp so much upon literature and history is because they contain in potent educative solution the rich culture influences which we wish to see redeveloped in every child. Moral and social culture, with all their humanizing influence, are contained in the choicest literature of America and Europe. Here are the ideals of life, revealed in their supreme strength and beauty. Here are the examples of men and women who lift and inspire. Here are revealed the moral qualities which should form the backbone of character.

5. If the course of study as a whole is thought of as a rope or cable, one of the important strands is a series of elementary science lessons stretching through all the grades. This fully accords with the immense influence upon human life which scientific progress has already attained. Herbartian pedagogy is in this respect thoroughly modern and stands abreast of the requirement that education shall equip a child to live up to his present opportunities, and to make use of the fund of scientific knowledge.

6. This educational movement includes such a mastery of the English language and of elementary mathematics as our schools have long aimed at, but only partially realized. It suggests no great change in the scope of these studies. They are the necessary implements of culture, and supply the forms of thought. But they should not be wholly isolated from the other studies, nor their separate disciplinary value estimated so highly as of old. The ideals, inspirations, and original sources of energy are in literature, history, and natural science. They are like deep fountains which spring from unfailing sources of supply.

7. This educational doctrine includes the effort to grasp all the studies and influences of the school course in one organized unit of influence, to so relate and combine the different forms of school discipline as to centralize and strengthen their combined effect.

8. In addition to this effort to lay out the best school course and to harmonize its various studies, there has been a strong, persistent, and practical effort to systematize the method of instruction, to find a set of principles sufficiently positive and definite for a common platform upon which teachers may stand, and yet sufficiently elastic to adapt it to the variety of studies and to the individuality of teachers.

A somewhat full course of study for the first and second grade is given

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in the *First Year Book* of the Herbart Society for the Scientific Study of Teaching.

Leaving out arithmetic and language, which are similar to the usual course, a brief suggestive outline for fourth, fifth, and sixth grades is appended.

FOURTH GRADE

HISTORY

Thirteen stories of pioneer life in the Mississippi Valley: Marquette, La Salle, Lincoln, Clark, etc.

GEOGRAPHY

Twenty important topics in the Mississippi Valley. The Illinois River, the corn and wheat regions, forest belts, coal fields, etc.

READING

The Wonder Book
Kingsley's Greek Heroes
Tales from Spenser
Hiawatha
Stories of the Old World

NATURAL SCIENCE

The forest trees
Hardwoods: maple, oak, hickory
Evergreen, pine, etc.
Wild animals of Mississippi Valley: deer, bear, beaver
The formation of coal

FIFTH GRADE

HISTORY

Pioneer Explorers
Twelve stories of Champlain, Hudson, Raleigh, Columbus, Smith, Cortes, Washington, etc.

GEOGRAPHY

The Eastern States and North America
Twenty-five important topics, as The White Mountains, Hudson River, New York City, Washington, etc.

READING

Higginson's American Explorers
Tales from English History
Lays of Ancient Rome
Black Beauty

NATURAL SCIENCE

Butterflies, bees, and other insects
Grasses
Physical experiments, pumps, engines, compass, thermometer, barometer
Weather study

SIXTH GRADE

HISTORY

The colonial period in Massachusetts, Connecticut, New York, Virginia, Pennsylvania
French and Indian Wars

GEOGRAPHY

Countries of Europe and colonial possessions. Twenty-five important topics

READING

Grandfather's Chair
The Sketch Book
Miles Standish
Tales of a Grandfather
Birds and Bees
Autobiography of Benj. Franklin

NATURAL SCIENCE

The robin, thrush, owl, etc.
The frog, crayfish
Turtle, fishes
Experiments in combustion: the lamp, stove, etc.

The very inadequate newspaper reports of the legislative investigation of the Regents of the University of the State of New York gave no proper idea of the extent to which the gayety of nations was promoted by that performance. The legislative committee was made the means of attacking Secretary Dewey, in the interest of a gang of political drones and sharpers whose noses, when poked into the public crib in the vicinity of his office, have been soundly rapped. Had Mr. Dewey been an ordinary political heeler, he would have fared badly; but being a plain man of affairs, interested in the businesslike and economical administration of the department under his charge, he boldly avowed that he *had* waked up voters (paid by the State to work on the Capitol) who slept during working-hours; that he *had* insisted on able-bodied men riding in elevators with fifteen volumes as a load rather than three, when the library was being transferred; that he *had* brought up State Geologist Hall with a round turn when that functionary's eyesight grew dim as to the location of the line that divided State property from his own; that he *had* asked the legislature to appropriate money for a small printing office in the Capitol in order that examination papers might be safely and privately printed, despite the fact that the blessed labor unions regarded that step as an outrage, or something worse; that he had, in fact, done nearly all that was charged and rather took pride in the fact. In the face of this attitude, Mr. Dewey's accusers slunk back to their holes—a proceeding which apparently suggested to him the pointing out of other apertures hitherto unobserved. But the committee grew tired at that point, and the matter dropped. If it is ever taken up again some interesting disclosures are promised, but Mr. Dewey will be at the other end of the investigation next time.

The unfortunate and perplexing circumstances attending the failure of the Omaha Board of Education to re-elect Dr. Marble as superintendent of schools have been made widely known through the press. Dr. Marble bore himself with great calmness and dignity throughout the trying ordeal, and nothing that has occurred has weakened his position or influence as an educational leader. Superintendent Cooper of Des Moines declined to become Dr. Marble's successor, because of the treatment accorded the latter. After some weeks of waiting

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the superintendency passed to Mr. Pearse of Beatrice, as energetic and competent a public-school man as is to be found in the great Missouri Valley. It is sincerely to be hoped that Mr. Pearse's administration will be as successful and harmonious as it deserves to be.

Evidence multiplies that school reform must be achieved not only without the cordial co-operation of many teachers, but often in spite of their opposition. The latest instance is at Paterson, N. J., where Superintendent Reinhart, who, after three years of devoted and untiring work, has succeeded in rousing the schools from their lethargy, was bitterly opposed for re-election by a majority of his principals and teachers on grounds that would have been laughable were they not so pitiful. The real trouble was that they have been forced to study and to improve their work. Such reforms as Dr. Reinhart had introduced were of the most obvious and conservative kind, but they were none the less disagreeable to the mechanical teachers whose intellectual somnolence was rudely disturbed by them.

Dr. Soldan is a fit and proper successor to Dr. Harris at the head of the St. Louis schools. No superintendent in the country surpasses him in scholarship, sagacity, and educational ardor.

It behooves the friends of school reform in New York to look carefully after the nominations now being made for the next legislature. If the hold of the school ring is to be broken, it must be by the enactment into law of some such measure as the Committee of Seventy approved last winter, and which was beaten by the politicians, after a desperate struggle.

The Report of the Royal Commission on Secondary Education was laid before Parliament in August, and will soon appear in printed form. Dr. Fitch will discuss its recommendations in an early issue of the REVIEW.